FAS Approved
ANTISTATIC COMPUTER FLOORING
The WHICH COMPUTER Show
STAND 91B
NEC BIRMINGHAM
25-28 November 1980

FITTED COMPUTER CARPET FROM £4 sq yd.

MARVILLIN CARPET & TILES
Duke St., Bedford. 214155

Datasaab all set for takeover

NEGOTIATIONS are likely to be completed this week for the takeover of Swedish computer and terminal manufacturer Datasaab by telecommunications company L. M. Ericsson.

Datasaab is currently owned half-and-half by Saab-Scania and the Swedish government, and the takeover is thought to have been initiated by Ericsson's former chairman Bjorn Lundvall, who died in a car crash in September.

Discussions on possible takeovers have been held with many companies including ICL, but the Swedish government was keen to keep ownership of Datasaab in Sweden, if that coincided with the best interests of the company itself.

Datasaab's chairman Hans Werthen has taken over as acting chairman of L. M. Ericsson as well, and is expected to be confirmed in that post at the next annual meeting of the company in the summer.

Because of its programme of product development, Datasaab has been making a loss since it was established as an independent company in 1977, but this has been reducing on schedule for breaking even by 1982. Datasaab's share capital is £35 million, while its turnover last year was £88 million and is expected to reach £112 million for the current year with a loss of £13 million.

Set up as a division of Saab-Scania about 20 years ago to provide the computing power for its aerospace activities, Datasaab has become less relevant to its parent, while Ericsson feels it will complement its recently established information systems division.

Ericsson aims to invest some of its £250 million cash pile in further acquisitions from the computer industry, either at home or abroad, and is particularly looking for software companies experienced in data communications. It bought one such company in Sweden, AU Systems, three months ago.

Datasaab is welcoming the takeover. A spokesman pointed out that ITT and Philips are active both in the office equipment and telecommunications markets, while Philips is Datasaab's biggest rival for banking terminals.

Logabax rescue bid

MOUNTING financial problems at Logabax, first signalled when the firm reported a loss for 1979, have climaxed in a £24 million rescue operation to save the French small systems and peripherals manufacturer from liquidation.

Computer and military electronics group Intertechnique, which called off talks to acquire Logabax a few week ago, has now agreed to pay £11 million in 1982 for a 65% controlling share in the firm, provided its 1981 balance sheet shows a return to health. Logabax is currently controlled by Electrobel of Belgium which is anxious to dispose of its majority interest.

But the cuts in Logabax's 2,000-strong workforce, which are seen as the main cure for the company's problems, could easily be thwarted by the French government's reluctance to approve dismissals at the moment. The presidential election is only five months away.

Increasing its holding in Logabax for the time being to 90%, Electrobel is adding £8 million to £1½ million already handed over to keep the ailing computer firm in business. Electrobel will pump in another £2½ million in the spring.

Three other sources of cash each contributing about £2½ million now are the French nationalised banks, the government investments body CIASI, and the group formed by Intertechnique, Marcel Dassault and Société Générale earlier this year to take control of Logabax. CIASI and the nationalised banks will each add another £2½ million in the spring.

M200H for Guardian

THE first UK order for the IBM compatible version of the Japanese built M-200H from Hitachi has been placed with National Advanced Systems by the Guardian Royal Exchange Insurance company of Lytham, Lancs. NAS sells the 10 mips Hitachi machine as the AS/9000.

to ensure first class service, top quality and total dependability
Contact
[illegible] design
manufacturers of High Quality
[illegible] FORMS
Rush Deliveries Are Our Speciality
NATIONAL WORKS
HALL STREET, DUDLEY
WEST MIDLANDS
DUDLEY (0384) 213061

MP slates Telecoms Bill

LACK of definite commitments in the British Telecommunications Bill drew contrasting attacks from Parliament and within the industry last week.

Opposition industry spokesman John Silkin said the Bill gave the Secretary of State almost dictatorial powers. Sir Keith Joseph would agonise for long periods over the use of those powers, Silkin added, before coming to wrong decisions which he would realise were wrong only 20 years after everyone else had.

All the important matters were left out of the Bill, which relied on guidelines, memoranda and enabling powers, said Silkin, adding that it was a piece of 19th century doctrinaire private enterprise philosophy.

Meanwhile, the industry the government aims to help fears that little change will be made to British Telecom's monopoly. Paul Carter, sales director of General DataComm's UK subsidiary, said: "It would be better if the government had bitten the bullet and said British Telecom will provide the network, but have no say over what is attached to it or what is transmitted over it."

John Gorst, Tory backbencher and chairman of the newly-formed Telecommunications Council, said the Bill would give British Telecom a monopoly over forms of communication not yet realised, which was no kind of liberalisation.

The Bill was given a second reading by a government majority of 69.

Acting chief of NEB

A STAFF member of the National Enterprise Board with a background in physics is taking over management of the Board for the time being, while Sir Keith Joseph seeks replacements for the six members who recently resigned. The new acting chief executive is the Board's secretary, Brian Willott, thought to be a suitable leader for the NEB's future role which should be mainly directed towards promoting high technology.

See Computerview, page 2.

Software pirates

SALES of cassette based software are down 50% on last year, according to Julian Allason, publisher of the independent Pet magazine, Printout. Allason claims that for every program legitimately sold, more than two are pirated. He points an accusing finger at schools and computer clubs.

Joint venture

WITHIN the next month a joint venture will be announced between the US company Shared Medical Systems and BOC Datasolve, to launch a hospital administration system called Action. This follows the UK launch, last week, of the Patient Care Information System (PCIS) by EDS World Corp (UK). The companies' systems will be similar in that they provide hospitals with a package to cover admission, treatment, and eventual discharge (or transfer), of patients and their records.

IBM 3081

ONCE is understandable. Twice unfortunate. But three times is downright careless. To paraphrase Lady Bracknell and with a nod in the direction of Portsmouth, it should be clearly understood that the latest IBM machine is the 3081. Not the 3801 as in some references over the last three issues of CW. Apologies.

Winner of the under-15 section of the Sunday Times/Commodore Young Computer Brain of the Year competition Rebecca Smith, seen here with one of the guide dogs, has accepted £500 in cash rather than a Commodore Pet.

Brain of the year winner

THE first Sunday Times/Commodore Young Computer Brain of the Year, 16-year-old Roger Hughes of Llandrindod Wells, was presented with his prize, a 32K Pet computer, printer and floppy disc drive, earlier this week at Imperial College, London.

His project, which won first prize in the 15-18 age group, was a home computer-based system for monitoring the sugar content of the blood of diabetics, and analysing the amount of insulin required by the body. Roger is himself a diabetic.

Winner of the under-15 category was Rebecca Smith, 14, who confessed she had had no experience of computing before entering the competition. Her project involved using a computer system to match blind people with suitable guide dogs.

About £4,000 worth of Commodore Pets and programmable calculators were presented by Frank Hooper, president of the British Computer Society.

UK study group on Ada

UNDERLINING the long-term significance of Ada as a universal real time programming language, the Department of Industry is funding a seven-month study to define the Ada environment, including a compiler and program development tools.

One important aim is to avoid UK dependence on Ada systems design work overseas.

The 10-man project group will have representatives from Systems Designers, Software Sciences, SPL and ICL, including the latter's Dataskil subsidiary. Their work will be monitored by the Ministry of Defence which is expected to place software development contracts when the study is complete. (Ada will replace Coral as the standard US Department of Defence real time language.)

The project will be divided into two teams, one concentrating on the compiler and the other on the rest of the Ada environment. The latter team will be led by Dr Vic Stenning of Systems Designers, who was one of the two authors of the DoD document that defined the Ada environment.

The US Air Force is currently procuring three competitive Ada environment designs, while the West German Defence Ministry is already funding Ada compiler design work. In addition, the EEC is planning a project similar to the work here.

Overall director of the UK project is John Barnes of SPL who has been closely involved with Ada design for several years. It will be managed by Dr Roger Gilbert of Systems Designers.

There will also be a review committee with representatives from universities, research bodies, the Computing Services Association, British Telecom and Plessey.

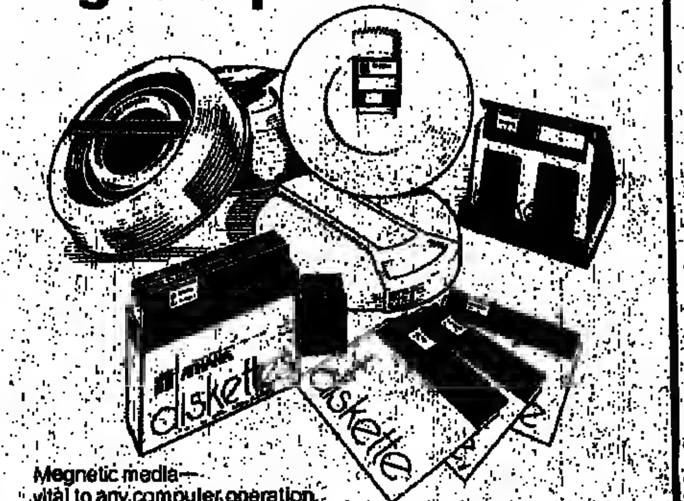
Integrated circuit 'first'

● From front page

2GHz and plans to move into the area of amplifiers for instrumentation. Other devices are expected to follow, depending on market demand.

From April next year, Siemens aims to produce CGY 21s in thousand-strong batches. The price for small volumes will be £60-£70 per device (FP600-700).

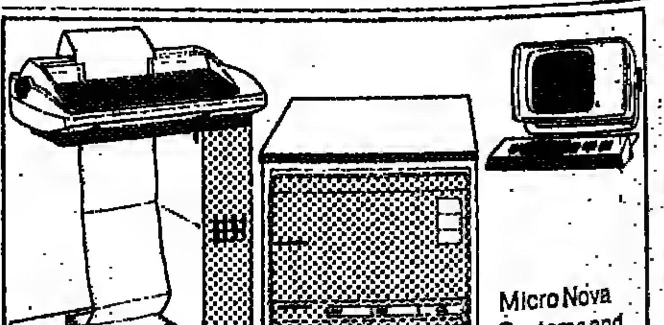
Later on, Siemens plans to reduce prices making the device more competitive with corresponding hybrid amplifiers. For quantities of 10,000, each device will cost around £15.



The quality line-up for a great performance

Magnetic media—vital to any computer operation.
An extensive range, obtainable from JMF, sole UK distributors of ATHANA media.

JMF (COMPUTER SUPPLIES) LTD
For quality and service - 01-428 0911
Premier House, Chantry Place, Headstone Lane, Harrow, Middlesex HA3 6PY



Micro Nova Systems and DG Terminals
Now Available Ex-Stock

DATAGENERAL
Prices start from £4460 for the MP100 and £5076 for the MP200 systems. Systems range from floppy disc through cartridge to Winchester storage.
Comma offer 'off the shelf' delivery of complete Micro Nova Packaged Systems as well as Expansion Memories, Communications Options, Interfaces and comprehensive Operating Systems Software.
Data General Printers and Dasher Terminals are also available ex-stock.
OEM DISCOUNTS AVAILABLE
COMMA COMPUTERS LTD
Branches in Birmingham, Bristol, London, Manchester
BRENTWOOD (0277) 811131

Printed in Great Britain by QB Limited, Sheepen Place, Colchester, CO3 3LD and published by IPC Electrical-Electronic Press Ltd., Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS.

From the system builders.
The system builders' computer.
Argus700 Series 2.
FERRANTI
Computer Systems

Number 738 Thursday, December 25, 1980 Price 25p

NL NEWBURY
Smart Visual Display Terminals
Prices from £495
Newbury Laboratories Ltd.
[illegible]
King Street, Odiham, Hampshire RG25 1NN
Tel 025 671 2910 Telex 858815
Northern Area Sales, Mersey House
220 222 Stockport Road
Cheadle Heath
Stockport SK3 0LX
Tel 061 491 0134

SHELL AND BP REJECT INVITATION TO INVEST MORE IN COMPUTER INDUSTRY

Govt seeks oil cash for ICL

by Kevin Cahill

THE government has initiated talks aimed at attracting oil company funds into the British computer industry. A team led by Sir Peter Carey, permanent secretary at the Department of Industry, and including Reay Atkinson, under-secretary at the DoI's Information Technology Division, has approached Shell and BP with the request that they consider substantial investment in the industry.

Both the oil companies and the DoI deny that the request was on ICL's behalf but it is clear that ICL was at the centre of the talks.

Shell has so far rejected the DoI approach saying that their funds were dedicated to the search for energy and that as a matter of policy the company did not get involved in areas in which it has no experience or expertise.

BP, which already has a major stake in the industry in the form of Scicon, is also understood to have rejected the government's approach. This is partly because a share in ICL would not fit into BP's diversification plans and partly because BP would not have the management expertise which it is felt ICL needs.

Money is understood not to have been a reason for rejecting the overtures, but ICL's need for further funds following the profit fall reported for last year may become acute over the next year or two.

With business all but stagnant according to the report released with the 1979/1980 figures, ICL is unlikely to have much success if it

● Turn to back page

ICL IN THE NEWS . . .

Move into retail outlets .... Back page
City reaction to results .... page 20
Redundancy talks .... page 2
Telecomputing suit .... page 2

Order growth halts

WITH pre-tax profits slashed by nearly 50% ICL has blamed the recession, falling margins, inflation and the big increase in the value of the pound for its disappointing performance in the 1980 financial year which ended on September 30.

Order growth has stopped and ICL's profitability is described by chairman Philip Chappell as "cloudy and uncertain" at present.

Notable features of the 1980 figures include a pre-tax profit nosedive from £20.5 million in the first half of the year to a mere £4.6 million in the second and zero turnover growth in the other countries of the EEC.

ICL made an overall loss on overseas operations in 1980 and Chappell cited as a major contributory factor the speed of change in "the real, effective exchange rate" which takes inflation as well as the value of the pound into account.

Chappell also blamed falling margins abroad, commenting, "It is now difficult to charge price on book overseas."

ICL's African business, biggest by far in South Africa, produced the only substantial turnover increase, from £50 million to £75 million, while the US saw a 50% drop to a 1980 turnover figure of just over £10 million.

While refusing to comment on any cutbacks in the US sales operations, Chappell admitted that the US market was "bloody difficult."

The 15% increase in ICL's total turnover to 1980 to £716 million was due almost entirely to UK turnover jumping from £329 million to £404 million.

● Turn to page 2

Burroughs' $125m write-offs

FORESHADOWED by the redundancy plans for its Cumbernauld (Scotland) factory, a series of write-offs costing up to $125 million are to be borne by Burroughs in its worldwide financial results for 1980. They will slash the company's 1980 net profits by nearly half.

Masterminded by former US Treasury Secretary Michael Blumenthal, who took over as the chief executive of Burroughs in September 1980, the write-offs are the result of a series of impending plant closures and consolidations, the phasing out of adding machine and calculator products, and the discontinuation of the Burroughs Selectific Processor.

Financial troubles at Burroughs first became apparent in the summer when the company reported a 12% drop in its second quarter net profits, the first quarterly decline in profitability since 1963. Things got even worse in the third quarter when profits fell nearly 32% to $42.2 million.

Blumenthal joined Burroughs in early 1980 as vice-chairman, and before being appointed chief executive he conducted an exhaustive review of the company's operations all over the world.

Burroughs plans for 355 redundancies at Cumbernauld have been strongly opposed by the local Labour MP Norman Hogg (East Dumbartonshire).

Burroughs is getting rid of nearly 500 workers at three plants in the Detroit area, among other lay-offs.

CA buys Improve range

THE Improve product range for IBM users and 15 sales and development staff at CPP UK are being acquired by Computer Associates following CAP-CPP's decision to sell off its troubled division (CW, December 11).

CA will market Improve software all over the world, including the US where only one customer has been picked up since mid-1980 by Insac Products Inc (CW, November 27). ISI's agreement with CPP was due to expire at the end of December 1980.

CA's UK director, Harry Gordon, was not prepared to comment on any price paid to CAP for the acquisition but said that the 15 CPP staff would almost certainly be moved from Richmond, Surrey, to CA's offices at Maidenhead.

Gordon pointed out that the five Improve products would complement CA's existing product line quite well. A good example was the Improve system, Dataspace, which handles OS disc file management and neatly complements CA's tape file management system, CA Dynam/T-OS.

Founded in Switzerland, CA is now US owned, the original Geneva-based parent having been taken over by its US offspring, Transamerica Computer Associates.

INSIDE THIS WEEK'S CW . . .

This week's issue is in a slightly re-arranged format, with Company News, the latest in our Data Analysis series and the People and Events page appearing after the job section. Christmas scheduling is the reason. Things will be back to normal on January 8. Happy New Year.

Computerview 2
Letters to the Editor 2
Honeywell triples mini power 3
Wang hots up WP war 3
Downtime by Chad 4
Gilb's Mythodology 4
Focus on 1981 4
Micro News 6
Programmers' Page 8
Op Spot 8
Puzzle 8
New Year - New Job 14
Crossword solution 16
Sales Bit 17
Company News 20
Data Analysis - Part 12 21
People and Events 22

JOB OPPORTUNITIES: Pages 10-19

Lord Soames, Lord President of the Council (left) talking with Philip Chappell, chairman of ICL, after the announcement that a contract had been signed by the Civil Service Department and ICL for the computerisation of the Inland Revenue's PAYE income tax system. This is the largest single contract ever received by ICL.

PAYE contract signed

by Keith Jones

ON December 22, only nine days before the end of the government's single tender policy, ICL secured its grip on the multi-million pound PAYE contract with the signing of a contract by Civil Service chief Lord Soames.

The order is for 47 ICL 2966 mainframes to be installed at 12 regional centres all over the UK. The first machine will be installed early in 1982 at the PAYE system development centre at Telford in the West Midlands. The first group of districts will go live some time in 1984.

As expected each 2966 will handle up to 500 terminals and there will be online local communication between them. But the links between regions will be off-line, at least in the early years of operation. Systems software, already closely assessed by the Inland Revenue at trials at West Midlands Gas, will include IDMSX and TPMS.

Reports that the Civil Service Department had threatened ICL with not signing the contract before the end of the year unless ICL lopped £10 million off the price, have been denied by the Department. According to ICL the order is worth "between £40 and £50 million".

Briefing

Amdahl on death charge

GENE AMDAHL, founder of Amdahl Corp, has been charged with manslaughter at a municipal court in Palo Alto, California. While driving his Rolls-Royce on November 17, Amdahl allegedly struck a motor-cyclist who later died in hospital.

Amdahl severed his ties with Amdahl Corp completely earlier this year to found Acsys, a firm that will build very powerful mainframes to compete with IBM (CW, September 11, 1980). First shipments are expected in about three years.

Satellite services

AGREEMENT was reached last week among the 119 members of the European Telecommunications Satellite Council, Eutelsat, on a programme of satellite-based private telecommunications services to be available to businesses with branches in member countries from 1983, using the two satellites to be launched for the French government and Eutelsat by the European Space Agency. Trials for the service are to begin during 1981.

Cary quits

FRANK CARY, chairman of IBM, has relinquished his position as chief executive officer, retiring from the day-to-day running of the company after more than 33 years with it. Cary will be succeeded by IBM president John Opel as chief executive officer on January 1.

System Industries
SITE
SYSTEM INDUSTRIES TRADE EXCHANGE
We have available on 60 day delivery new and used DEC® disk systems for UNIBUS® or MASSBUS® connections, complete with DEC® controllers – RM02, RM03 and RP06 systems. All used systems have been fully DEC® maintained.
For more information call
Woking (04862) 5077
STOP PRESS
IMMEDIATE DELIVERY FOR DEC® RP06 SYSTEM COMPLETE WITH MASSBUS CONTROLLERS FOR VAX 11/780
Tell me more about S.I.T.E.
Name
Company
Address

COMPUTER WEEKLY

Vol. 29 No 738
Thursday, December 25, 1980

Editor
Simon Timm 01-661 3122

Deputy Editor
Brandon Gamester 01-661 3124

Advertisement Manager
Harry Hutson 01-661 3101
01-661 3102

Class Ad Manager
Brian Dutrant 01-661 3106

Publishing Director
Dr J. A. G. Thoman

Editorial Director
Chris Hipwell

IPC Electrical-Electronic Press Ltd,
Quadrant House, The Quadrant,
Sutton, Surrey SM2 5AS.
Telex: 892084 BISPRS G

Branch Offices:
Birmingham: Lynton House,
202 Walsall Road, Birmingham B42 1BA
Telephone 021-356 4838

Manchester: Grove House,
Skelton Road, Old Trafford,
Manchester M16 0WL.
Telephone: 061-872 8861.

New York: 205 East 42nd Street,
New York NY 10017.
Tel: (010-212) 867 2080.

Published weekly on Thursday.

Registered at the Post Office as a newspaper. Price per copy 25p.

© IPC Business Press Ltd 1980.

EDITORIAL
The following editorial staff can be contacted on 01-661 3500, with the extensions shown:

Keith Jones	3536
Rory Johnston	3534
Kevin Cahill	3538
Claire Gooding	3541
Eileen Steiner	3540
Bernard Allen	3537
Pamela Rowe	3548
Paul Fisher	3538
Donald Kennett	3536
Mike Marples	3548
Nancy Pocock	3545
John Bull	3543
Julia Cotterill	3544

ADVERTISING – Display
The following staff can be contacted on 01-661 3500, with the extensions shown:

Chris O'Hea	3604
Ian Carter	3572
Xania White	3571
Steve Bass	3570

Manchester Harry Aiken	061-872 8861
Birmingham Ken Parrott	021-356 4838

ADVERTISING – Classified
The following staff can all be contacted on 01-661 0121:
Chris Prior
Ken Walford
Ian Faux
Neil McDonnell
Denise Smith
Julia Hannaford
Kevin McOwan
Gillian Johnson

Manchester Owen Kelly	061-872 8861
Birmingham Viv Shorat	021-356 4838

ADVERTISING – Production
The following staff can be contacted on 01-661 3500, with the extensions shown:

Steve Levell	3104
Peter Ragis	3575

Computer Weekly has a circulation each week of over 94,000 including the highest fully requested circulation in the UK.

Computer Weekly is sent free of charge to the following categories in the UK and Eire only: Company directors, company secretaries, management services executives, civil servants responsible for computing, management/computer consultants, lecturers and teachers, DP managers/supervisors, systems analysts/O&M officers programmers, operators, computer salesmen, field engineers.

Controlled circulation department: IPC Business Press (Sales and Distribution) Ltd, 40 Bowling Green Lane, London EC1R 0NE. Tel: 01-837 3636. Subscriptions (one year) for readers outside the above categories: UK £18, UK Students £9, overseas £30, overseas students £15, US and Canada $70, US and Canadian students $35. Back number price 70p. Airmail to Middle East or North Africa £58.35. Airmail to rest of Africa, North and South America or South Asia £61.84. Airmail to Far East or New Zealand £67.40. Applications for subscriptions should be sent to: IPC Business Press (S&D) Ltd, Oakfield House, Perrymount Road, Haywards Heath, Sussex. Tel: 0444 59188.

ISSN 0010-4787

COMPUTERVIEW

A slowdown rather than a collapse

IN a year which ends with the worst unemployment figures since the Hungry Thirties, Computer Weekly readers should be thankful that their industry has suffered only a slowdown in its meteoric growth – and not a collapse.

The manufacturing side of the business may have seen some big cuts, notably closure of the ICL plant at Winsford. And, more disturbingly, there is a small army of workless graduates who might have been acquiring valuable skills at ICL and CAP had they not received marching orders before their industrial careers reached the launch-pad. These apart, most computer professionals with experience, repeat experience, were still much in demand.

A few heavily-publicised systems house failures may have given the impression that the service industry was about to follow the lead of British Steel into the mire of massive redundancy.

A closer examination of the companies going under suggested that factors other than the economic situation had contributed to their problems – like inadequate management, for example.

Nevertheless, the classic argument that companies invest in computers during a recession to improve their efficiency has been shown as fallacious. In good times, even the least competent systems suppliers have often managed to survive. Now the unofficial government policy of letting the weak go to the wall is taking effect.

Those who doubt that business is bad, at least by computer industry standards, should consider ICL's depressing financial results for the year ended September 30, 1980. Profits plummeted from more than £20 million in the first half of the year to a mere £4 million in the second.

ICL has admitted that orders have now levelled off. All of this indicates that ICL's position became progressively worse as the year went by. The company was hit very hard by inflation, high interest rates, and worst of all by the exceptionally rapid change in the cost of UK products abroad.

Had the Inland Revenue PAYE contract, one of two anti-climactic cliffhangers dominating the news in 1980, not been awarded to ICL under the now (January 1) defunct single tender policy, this would have been the company's blackest year ever.

As it was, the year turned out to be the worst since 1972 when the company made only £3.3 million from £150 million sales. In pure money terms, the PAYE contract is worth about £40 million over several years and is not going to improve ICL's financial position dramatically; at least, its world computer market credibility is no less now than it was when the year began.

For those who had not guessed already, the other cliffhanger was the long wait for the IBM H-series. When the first member was launched as the 3081 in November, only a novel and rather exotic cooling technique and using the rather pretentious term "dyadic" to describe two very tightly-coupled processors hid the fact that the machine was most definitely revolutionary rather than evolutionary.

The TTL componentry provided more logic gates per chip but nothing spectacular compared with the Hitachi M-200H for example. Most significantly of all, no big changes were made in the systems software supported by the machine.

It offered merely a lot more power for slightly more money and IBM users may thank Hitachi, Amdahl and its Japanese sidekick, Fujitsu, for these developments.

Fujitsu can also be blamed, if "blamed" is the right word, for putting paid to Storage Technology's plans to take over Amdahl and complete head-on with IBM more or less across the board at the top end of the industry giant's market.

While not interfering directly in merger talks between the two firms Fujitsu, which owns 27% of Amdahl, turned Storage off the idea of a merger at the last minute by asking Amdahl for confirmation of its long-term components supply contract.

Using this method, Fujitsu thwarted Storage ambitions to become Amdahl's main semiconductor supplier. Storage restated its continuing willingness to get into the IBM compatible business later in the year by announcing plans to launch a family of machines in 1983.

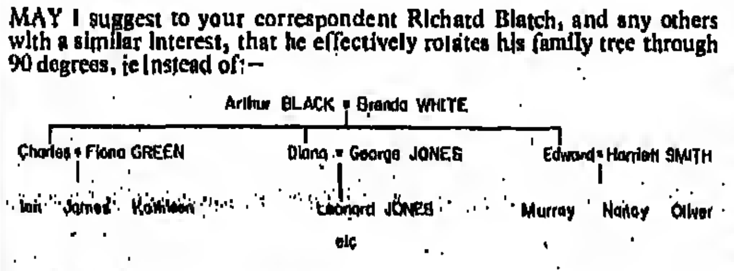
Meanwhile the EEC Commission made known its ambitions for European manufacturers to produce sub-micron microelectronics by 1985 and underlined the importance of key process plant being available from EEC manufacturers. Alas, national interests look like keeping Europe permanently behind the US and Japan in the chip development race.

There's a sobering thought for 1981.

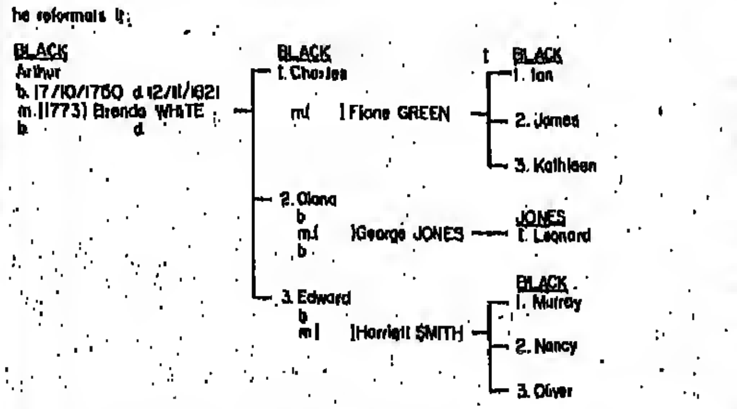
LETTERS to the EDITOR

Simplifying the family tree

MAY I suggest to your correspondent Richard Blatch, and any others with a similar interest, that he effectively rotates his family tree through 90 degrees, ie instead of:–



he reformats it:



This simplifies print-out on a line printer (say three generations per page width) instead of a graph-plotter and should ease the coding problem considerably.

This method of presentation is used by my brother, Mr F. G. St. C. Strange of Harbledown, Canterbury, and I have our family tree over 10 generations (from 1673) typed on 14 sheets of foolscap with over 450 names on it.

J. H. St C. STRANGE

Ealing Village, London W5.

What's the professor driving at?

I HAVE now read Donald Michie's article (CW, December 11) several times; I still have no idea what he's driving at.

There are a couple of sentences which fascinate me, however: "Once we leave the cooked-up classroom problems for the real world the matter stands differently. If some physicist disagrees let him write a program to control a robot monocyclist". Are we to suppose from this that the real world is adequately represented by robot monocyclists?

I'm not quite sure why the whole of physics should be so roundly condemned because of its failure to enlighten a monkey on how to cut a bunch of bananas from a string. Poor old Euclid, he catches it in the neck, too, but even Euclid never dissected an angle!

With this sort of malapropery going on it's no wonder we are referred to McCarthy and Hayes for such terms as "heuristic" and "epistemological".

CONFUSED

(Name and address supplied)

THE EDITOR welcomes letters commenting on subjects published in Computer Weekly, or on original topics.

Ideally suited to data transmission

I REFER to your article (CW, November 27) entitled Ten Firms Enter PoS Market. The article is in effect a review of the publication recently issued by us, Guide to Retail Capture Systems. By and large the information you give about the Guide is accurate; however, I was distressed to note that the information in the penultimate paragraph is inaccurate and in fact suggests the precise opposite of the truth.

The paragraph quotes the Guide as saying that portable data entry terminals may be used as low-cost substitutes for PoS terminals, but that they have no data transmission facility.

In fact what the Guide says is that PDETs are ideally suited to carry out a data transmission function for retailers but because they have limited facilities in other directions, are not recommended as substitutes for PoS terminals except in certain circumstances.

Dr G. T. JONES

Retail Management Development Programme,
5/6 East Street,
Brighton BN1 1HA.

Two traditions brought together

MAY I reply to some of the points raised in recent weeks by correspondents interested in the Basic/Pascal controversy.

My advocacy of the RC Piccolo and SPC/1 microcomputers is based on their support of Pascal and Comal-80, not Coral-80 as two correspondents assumed. The mistake is not surprising because Comal is not yet widely known in UK though it is creating great interest whenever it is demonstrated or discussed.

The reason for the special interest is that Comal does precisely what David Burdett is hoping for. It adds Pascal structures to the simple syntax and operating environment of Basic. Thus two great computer language traditions are brought together: the simple practicality of the Fortran/Basic line; the structural and theoretical soundness of the Algol/Pascal development.

But Comal is more than that. It has an elegant and simple notation combined with system-forced indenting. Further, it is defined formally as a set of extensions to Basic so that in political terms it has strong chances of being widely implemented.

My own somewhat passionate interest in Comal derives partly from the havoc currently being created in our children's minds by the Basic/Flowchart approach to problem solving and programming. I see evidence of this almost daily, and it is clearly most important for those involved in teacher education or advising schools to be informed about the considerable progress which Comal represents. I will gladly supply more details to anyone who requests them.

ROY ATHERTON

Head of Computer Education Centre
Bulmershe College of HE
Reading

1984 and all that . . .

THIS week's example of the strange things people say about computers was sent in by R. A. Mould of Bracknell, who wins £5.

> When you build a multi-million pound brewery designed to serve the brewing needs of a company the size of Courage's it has to have the most up to date equipment to run it.
>
> In the old days cleaning the brewing equipment often meant men getting into the containers and manhandling the spent hops away.
>
> Computers have taken that sort of back-breaking drudgery out of the brewing process and left the brewers to use their skills to make the decisions that matter.

News Extra, Bracknell

ICL pre-tax profits slashed by half

● **From front page**

This increase was achieved despite the bad second half, a big shift from outright sales to sales to leasing companies and according to ICL, no significant increase in selling prices.

Chappell said that ICL policy in 1980 had been growth at the expense of profitability.

Referring, albeit indirectly, to the 2,500 redundancies announced by the company in November, Chappell said that ICL costs were being reduced significantly but that profitability was bound to suffer for some time ahead because of the time needed to make cuts.

One group not suffering noticeably from ICL's profit slump are the company's shareholders who will receive the same 2.975p per share dividend as in the previous year.

ICL's justification is that its dividend policy should "broadly reflect the longer-term strength of the business and its future prospects."

In contrast unions at ICL are to tighten up on overtime and use of contract staff as the company goes ahead with its manufacturing and marketing staff reductions.

The unions have told ICL that they expect the company to comply with the security of employment agreement drawn up between the two sides in 1977 and reminded their members about contract staff and overtime clauses.

This follows a meeting between the two sides in which ICL presented the unions – ASTMS, APEX, AUEW/TASS, ESSA and ACTSS – what one union official described as a "detailed analysis" of its reasons for laying off about 2,500 staff, including 1,500 at the Winsford (Cheshire) plant.

Rita Stevens, national officer for APEX, commented, "We're making sure that they honour the security of employment agreement."

Delays help TPS firm

ATTEMPTING to cash in on delays to ICL's teleprocessing software, Oxford-based Telecomputing last week placed ads in The Guardian and Daily Telegraph for its TPS monitor, saying that it made ICL's ME29 the best small TP computer currently available.

Telecomputing has a £16 million suit pending against ICL for allegedly reneging on a contract to sell TPs, while ICL is suffering delays to the alternative it has chosen from other sources.

The TPS enhancements were announced at a conference in October and the latest version of the monitor, TPS3, is designed to aid conversion of DME and TME programs to run under VME in addition to the ME29.

TPS-access, an enhancement which will be available in January, is designed to aid searches and calculations on data held in files.

Telecomputing chairman Bernard Panton has reacted to the news of ICL's disastrous stock market performance by suggesting that ICL would do better to encourage support from independent software suppliers rather than trying to be a single supplier of total systems.

Honeywell triples mini power

UP to three times the power of the existing Honeywell Level 6 minicomputer series at prices only marginally greater. This is what Honeywell now offers in the form of the DPS 6 family which reaffirms the company's substantial commitment to the minicomputer market.

Other important features of the 10-member DPS 6 family are two 32-bit machines at the top end that compete directly with the Digital Equipment VAX-11/780, and the capacity of four of the 16-bit members to be field upgraded to 32-bit processors. According to Honeywell there are no major architectural differences between DPS 6 and Level 6 because the older series was designed originally to accommodate a 32-bit structure.

To take advantage of the performance of the new machines Honeywell has unveiled an updated version of its GCOS 6 Mod 400 operating system with improved memory usage and file handling. But the DPS 6 machines will still be able to run Level 6 applications programs without modification.

Stephen Jerritts, president of Honeywell Information Systems, has given assurances that the company would continue to provide system enhancements for Level 6 machines.

DPS 6 has not been officially introduced yet in the UK and Honeywell was unable to quote a launch date. Like Level 6, DPS 6 machines could be built at Honeywell's plant at Newhouse, near Glasgow.

The four bottom end machines in the DPS 6 line are the 6/30, 6/32, 6/34 and 6/38 with configurations ranging from 128K bytes and 10 megabytes on disc on the 6/30 to 768K bytes and 80 megabytes on the 6/38. The latter can support up to 24 communications lines compared with a maximum of eight on the three smaller machines.

The four mid-range systems are the 6/48, 6/54, 6/74 and 6/76 and all, apart from the 6/48, feature a slave CPU called the Commercial Instruction Processor which handles Cobol and RPG generated programs. There is also an optional Scientific Instruction Processor for executing Fortran or Basic programs. All four machines can be upgraded to a 32-bit computer by activating a 32-bit wide pipeline incorporated in the Megabus.

The two machines offering 32-bit processing as standard are the DPS 6/92 and the 6/96 which respectively support up to 64 and 112 I/O lines and up to two and three megabytes of disc storage.

Two word processing systems

ANNOUNCED by Honeywell with the DPS 6 family are two word processing systems for multi-terminal users called Administrative System 4 and 16 and a WP applications package called Word Processing 6.

System 4 is available on the two smallest members of the DPS 6 family, the 6/30 and 6/32, and can support up to four workstations and two printers. System 16 can handle up to 16 workstations and six printers and runs on two larger machines, the DPS 6/38 and 6/48. Shared resource facilities enable documents to be transferred between locations and there is a mailbox system from which correspondence can be selected as required.

Word Processing 6 can run on Level 6 machines as well as on the new DPS 6 computers and is supported by either GCOS 6 Mod 200 or Mod 400. It enables users to interchange text or data files and create a report from different systems' files.

French bank boosts electronic transfer with NCR PoS equipment

MAJOR French bank Credit Agricole plans to extend its offline electronic transfer system involving NCR point-of-sale equipment at three hypermarkets and reports growing interest from other European banks.

For the past ten months Credit Agricole customers have been using bank cards, normally used at the bank's automatic teller machines and branch counter, to purchase goods at two hypermarkets in Clermont-Ferrand and Limoges, Central France.

Paperless transactions at the hypermarkets have risen by around 5% a week over that period, Jean Paul Grandy, DP manager for Credit Agricole in Limoges, commented: "Our recommendation has been that we should plan the expansion of the system with other retailers, not only supermarkets and department stores, but also smaller shops using standalone terminals.

"When we started with the trial, other French banks were not interested. Now we find an increasing number are interested in joining the system, as well as other European banks."

NCR is developing a bank card reader to PoS terminal interface which would make extension of the Credit Agricole system possible.

A company spokesman said, "The hardware involved, the microprocessor interface, isn't very spectacular – it's the application which is interesting.

"Early next year, we should be able to link the readers to most of our point-of-sale terminals and support as many different types of card as anyone would need."

Grandy explained why the bank went for an offline rather than online EFT system. "As bankers, we must not give information on our customers' credit standing to any other user than the bank.

"This system, which NCR developed in conjunction with our bank, is much easier, quicker and less expensive to install.

"The card reader, pin pad and adaptor are simply added to the retailer's existing NCR system."

Under the Credit Agricole project, standard NCR magnetic card stripe readers and a 12-key pin pad have been added to NCR 255 PoS terminals via a microprocessor interface.

After itemising and totalling the purchase, the cashier feeds the customer's card into the reader.

The local system runs a check against his account and shows the information and prints full details of the transaction if all is well.

At the end of the day, the data is transferred direct by line or physically by cassette, disc or magnetic tape, to update files on Credit Agricole's NCR and IBM mainframes.

Six Acorn Atoms and a floppy disc-based filestore are linked by Econet at Long Road Sixth Form College in Cambridge . . . for a total of £2,600.

From tiny Acorns . . .

THE trial system of Acorn Computers' low-cost local networking system, Econet (CW, November 20), is up and running at a school in Cambridge and the company is ready to start volume production of the system.

Acorn director Chris Curry believes that the availability of such systems will stimulate the production of so much good quality computer assisted learning programs that all existing material will be insignificant by comparison.

Econet can be implemented for between £50 and £60 per node on top of the cost of the micros, which in the case of the Acorn Atom is from £120 to £300 each.

The first Econet interface boards have been developed for use with the Atom micro, but Cambridge-based Acorn plans to develop versions for other micros. The board uses Motorola's MC6854 Advanced Data Link Controller to implement the IBM SDLC protocol on the data line.

The network is based on ordinary four-wire telephone cable with a clock signal on one pair and data on the other, running at 210Kbps, although later versions are to run at 250Kbps.

A maximum of 255 stations can be connected to one cable and a three-part operating system has been developed: to run in the central clock generator station, a file server and a printer station, as well as the driver program to run in each terminal.

Commands implemented on the system allow one station to control another, or view its screen, or Peek or Poke into its memory. Messages can also be broadcast to all stations.

Wang hots up WP war

THE low-cost word processor war has heated up even more with the launch by Wang of its answer to the IBM Displaywriter. Called the Wangwriter, it is a new design not directly compatible with Wang's existing ranges, and is priced in the US at $7,500, undercutting IBM's basic price by $400.

Only one version of the Wang writer is currently offered, with a screen, detachable keyboard (unusual for Wang), single minifloppy disc drive, and slow (20 chps) daisy wheel printer. This configuration is comparable to the basic Displaywriter (CW, June 26), in looks as well.

Wang has also announced the Remote Cluster Facility, which allows its OIS word processors to act as data processing terminals on the VS computer system. Currently OIS units can only send and receive documents with the VS, and cannot carry out DP work. A new telecommunications processor is attached to both the VS and OIS, and the OIS keyboards are modified to give the required DP functions.

First deliveries are planned for June in the UK, at a price of £4,350.

Put your equipment in our hands

By doing so you'll get the benefit of our experience in servicing a whole host of different manufacturers' equipment.
From a computer terminal to a sophisticated mini, we can handle it – and fast
Our qualified engineers will operate within 8 working hours of receiving your call and they all carry a full set of spares
So whether your equipment includes minis, word processors or terminals, just put it all in our hands.
To find out more about Hamilton Service return the coupon below or phone your nearest branch.

*DEC,
Hewlett-Packard,
Texas Instruments, Diablo,
Techtran, Hazeltine, IBM,
Midlectron, Newbury.

WHAT SERVICE REALLY MEANS

HAMILTON SERVICE

London
01-450 8900
01-961 6777

Birmingham 021-236 3561
Bristol 021-236 3561
Manchester 061-848 8338/8434
Central Scotland 0501 43182
Aberdeen 0224-25301

To: Hamilton Rentals Ltd, Station House Neasden Lane London NW10 1PH
Please send me further details of the Hamilton Maintenance Agreement
I have the following equipment __________
Name __________
Company __________
Position __________
Address __________ Telephone No. __________

[illegible]

Downtime

by Chad

Food for thought

GLEANING new information to expand our professional knowledge requires some surprising skills, doesn't it? I'm thinking of the technique of eating at conference receptions, where one needs to manipulate plate, fork, glass, and notes all with two hands (unless you happen to be a Hindu god with lots of extra limbs).

I was doing this at a reception after the Online Information conference, and having munched down to the less appetising bits of food on my plate, I put it down temporarily to give my contorted fingers a rest. Up bustled a waitress, seemingly full of that all-too-common eagerness that her kind have of snatching the food out of the mouths of customers.

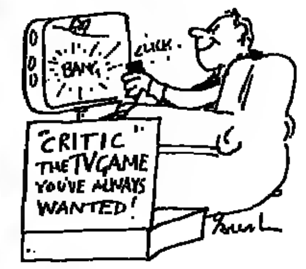
Asked she, pointing to my plate, "Have you finished with this?"

I hadn't, but wishing to please as always, and considering that I didn't much care for what was left on the plate, I replied, "Yes."

She then picked up the plate, peered at it closely, and exclaimed indignantly, "But it's not finished! You haven't finished it!"

She plonked down the plate and marched off, so I didn't get a chance to discuss her theory of dialectics that lets her ask a question and then refuse to accept the answer.

Handy, isn't it?


BANG
CLICK
"CRITIC"
THE TV GAME YOU'VE ALWAYS WANTED!

Go to blazes!

ON the fire hose reel in our office is a sign: "Do not use hoses except in case of fire."

The mind boggles! What on earth do they imagine people would do with them? Spray them all over to liven up an office party? Use them to increase the liquidity of the accounts? More likely to muffle the fire alarm when it goes off spuriously.

I understand there is a prison somewhere in which there are glass cases in the warders' offices, each containing a rifle. On every case is a sign reading: "In case of break fire this."

A Happy New Year . . . if you'll excuse the expression

THERE was a cartoon by Pont, published in Punch during the dark days of the Battle of Britain, in which one middle-aged lady says to another over the breakfast table, "*Must* you say, 'Well, we're still here,' every morning?"

I confess that seems to me the most appropriate sentiment for the New Year – "Well, we're still here."

Reflecting on the economic crisis we are in, I can't think of a time when we weren't in an economic crisis, but I suppose some crises are more equal than others.

Anyway, this is the time of the year for reviews and predictions, and as a public service I will not swamp you with any more. I will certainly not predict that some time in 1981 trade unionists will claim there will be 50 billion people put out of work by the microchip by the end of the year, nor will I forecast that Apex and the National Graphical Association will lead a protest march to the Inmos factory in Newport where they will throw their wooden shoes in the step-and-repeat machines. Speaking of the NGA, I certainly will not suggest that Kerry Packer is thinking of buying The Times and bringing in teams of kangaroos to run the new technology printing equipment. He could hardly do that when Sir Keith Joseph has a prior call on the kangaroos to take over the NEB.

It would be irresponsible of me to lead you to think that IBM is going to introduce, later in the year, its "Z" series, an ecological, energy-saving computer that uses no electricity. Teams of unemployed people would be hired to turn cranks on the side of the machine, and the heat they produce would be an extra boon to the air-conditioning industry. I can assure you that those were not IBM spies seen lurking around Babbage's Analytical Engine in the Science Museum, trying to steal Britain's secrets.

I will not bother to predict that during the year the Japanese will devise a chip that can hold the whole of the world's knowledge in a space the size of a flea's footprint, because doubtless someone else will. It goes without saying, of course, that a professor at an American theological seminary will write a program that calculates how many angels can dance on the head of a pin.

On the social front, I need not forecast that a crusading journalist on the New Statesman will discover that boffins at the security services have invented a computer which translates telephone conversations into Latin elegiacs.

In all, 1981 doesn't look as if it will be much different from 1980.

GILB'S MYTHOLOGY

The Blue Sky path to simplicity

SIMPLICITY is our dream, a point illustrated at a recent Infotech conference in London when the lecturer spoke about measures of software complexity.

A member of the audience won spontaneous applause from other listeners by saying: "I am interested in measures of simplicity."

If you feel simplicity inclined, perhaps you can make your simplicity dreams come true.

Dare to dream about the simplest and most direct solutions to your problems. Don't give up so easily when evaluating practical and economic solutions to your dreams.

For many years I have made conscious use of the "Blue Sky" principle for system design. First, I identify my dream of the simplest and most direct solutions. I try hard to find appropriate solutions and don't give up easily.

The mere fact that clients or colleagues say: "It is impossible" represents a personal challenge.

It is more fun to accomplish what others have said was impossible. Last month, for example, an airline told me it was impossible to divide up a 55 work-year project into smaller deliverable steps.

Common sense

Less than an hour later they agreed it could be done, and the people who had told me the task was impossible did most of the real work in identifying the solutions.

The answers were just good common sense but by using the shared dream of reducing project size and complexity, we worked until solutions began to appear. Then we bulldozed all "objections" to our ideas by finding appropriate solutions.

When you are starting on the famous Cloud Nine, you might have to give up temporarily and try Cloud Eight. Years ago, in making a publisher order-entry system, I started on Cloud Nine.

All handwritten orders from all over the world, from bookshops, universities and private individuals, would, we dreamed, be fed directly into the computer unchanged, uncoded and without any human intervention. By the time the system was on the air, we had moved down to at least Cloud Eight.

We did have one of the world's very first publisher systems which permitted direct keying of customer names, addresses, authors and titles (product descriptions) – with all their abbreviations, variations and misspellings – into our computer.

The computer was remarkable in recognising the correct customer or product record.

Unlike all other publishers in the world, we had eliminated the need to encode a Standard Book Number before the computer could understand anything. Our system found the record for us: we didn't even need the number.

It might still surprise some readers to realise that the programming needed to perform this Cloud Nine dream was initially about 40 lines of Fortran written by a trainee.

Later, we elaborated it to several hundred lines of code in order to improve its "intelligence" (like knowing that VII and 7 were the same thing).

Codes

In another similar dream, we designed a system for a hardware wholesaler. The original designs of several suppliers stipulated a 10-digit number for all products – with a check digit, of course.

The problem was that none existed and the wholesaler had been using the product codes found in catalogues of major international hardware suppliers.

Our Blue Sky dream, shared by the company president, was to avoid the problem of numbering several hundred thousand products. The exact Blue Sky dream was to use whatever they had been employing.

We settled on a design using a simple abbreviation for the supplier, VOLVO becoming Vol if it was unique, combined with the product code used by Volvo (for example PC-236-X).

The simplicity of this solution was obvious, involving no major changes in catalogues, ordering procedures or warehouse numbers.

Tom Gilb is an independent consultant, lecturer and author on computing topics.

Some readers might want to know if there is a more formal method for Blue Sky design thinking. There is and I will describe it in terms of the Design by Objective methods.

System Attribute specifications are set to Blue Sky levels. For example, the maintainability goal is set to "one second for repair of at least 50% of random logic errors" and the search for appropriate technical solutions starts.

Traditional methods are inappropriate. Try structured programming, and then less traditional technology such as having an independently written extra or spare part logic module with different bugs and a supervisor module to look at output differences from the two "distinct programs".

The act of stating system design goals in quantified, but higher-than-known-state-of-the-art levels, format does provoke either solutions to the design problem, or a formal basis for recognising to which Cloud you should descend.

Gilb's Hypothesis: If you design bottom up with ambition levels, you will remain at the bottom: If you start design on Cloud Nine, then you will probably achieve results at a higher level of ambition than at the bottom level.

FOCUS

At the turn of the year . .

IT IS traditional at this time of the processing year to delve into the clairvoyant database of forecast and conjecture. Focus must first lean back to review the trends and entrails of the DP year past.

1980 was heralded as the year in which the micro revolution would reach overdrive top. In the event, it was more in underdrive bottom mode with the industry surviving relatively unscathed.

Certainly, micro power has reached the book and magazine racks as well as shelves of the local high street stores.

Discontent

But dispatches received from the micro front line have revealed discontented murmurs from sundry users who discovered, late in the acquisition stakes, that performance does not always match sales claims.

Similarly, 1980 has not proved to be the year of Prestel, viewdata, Oracle or Ceefax. The telephone part of the operation was more noted for substantial price increases.

The year failed to enhance the fortunes of ICL, which revealed during the period under review a stronger marketing line in graduates than machines.

After the departure of Alan Benjamin and David Firnberg from the CSA and NCC, both organisations appear to have disappeared from view along with similar oblivion for the great privacy debate.

UK computer exhibitions have also lost popularity. Compec apart, the glitter has departed together with the exhibitors and visitors.

Conferences, seminars and workshops have all taken a dive in Focus ratings. Non-chart movers include word processing, leasing companies and bureaux operations.

DP magazines have moved in the opposite direction. Industry observers believe that possibly more installation time is now spent reading than operating.

The Computer Users' Year Book achieved record proportions, as did programmers' pay, and robots made a belated climb in the activity charts, surfacing at both Longbridge and Olympia.

Moving to the sharp end of the industry, the long awaited IBM H-series arrived finally, complete with Dyadic design and internal waterworks.

A hot line to the local plumber must be added to emergency phone listings; Amdahl maintained their reputation by announcing a rival product within hours of the 3081 release.

It was a year in which Focus continued its "record" of failing to win an industry award. As compensation, Focus hopes to feature in the forthcoming publication Who's Who In Computing.

Peering into the data bowl, lines cross and networks appear to form as 1981 looks like being the year of telecommunications.

Convergence will be the buzz word, whether it is British Telecom moving towards liberalisation or the user towards a totally cashless society.

EFT will rule, photons replacing electrons, fibre optics technology superseding everything else. DPMs will have to interface with the local IBM diagnostic centre as well as the next passing communication satellite.

With the erosion of the PO telecom monopoly controls, declining costs and user demand for faster communications, the DP manager will also have to make close connections with the local British Telecom manager.

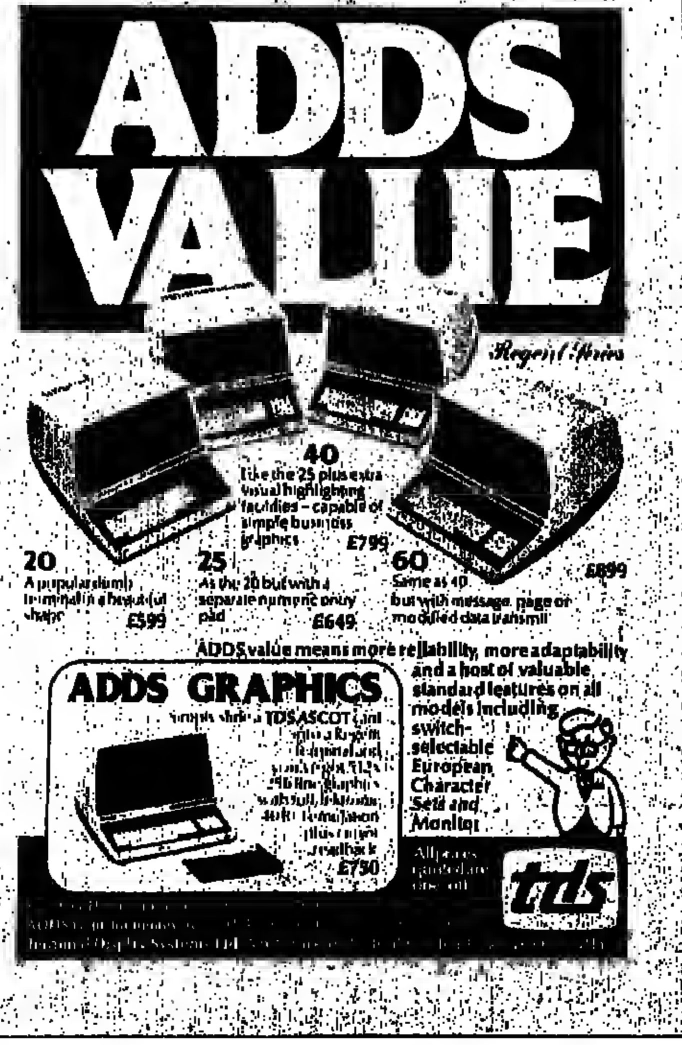
The coming year looks like providing even more change and uncertainty, budgets continuing to be a critical computing factor with cost performance a major consideration.

It may prove difficult to find a better slogan than the 1980 Focus Award winner: with equality for all in the ascendant, "Equal Bytes for Women" will be an integral part of the established DP scene in years to come.

TEN YEARS AGO

From Computer Weekly of December 31, 1970

THE Post Office announced plans for a large scale computer-based message switching network capable of dealing with 125,000 telegrams a day and invited major companies to tender . . . Siemens unveiled a New Year European challenge to IBM with its revamped 4004/45 system, supplemented by the 4044/135, 150 and 151, the latter three manufactured under licence from RCA . . . Prime Minister Edward Heath raised the contentious issue of computer sales to the Soviet Union with US President Richard Nixon during his pre-Christmas visit to the White House – with a NATO-embargoed £6 million ICL order firmly in mind . . . London-based SIA envisaged reducing staff by 20%, involving some 30 people, early in 1971 following a revised estimate of business expansion, scaled down from an original 50% to 35% in the company's latest *projections* . . . *Another* company shedding computer staff was Berk Ltd, whose merger with Steetley and Co of Worksop meant eight redundancies following its decision to employ a computer bureau service to replace its ICL 1901A installation.


ADDS VALUE

Regent Series

20
A popular slimline terminal in a beautiful shape £599

25
As the 20 but with a separate numeric entry pad £649

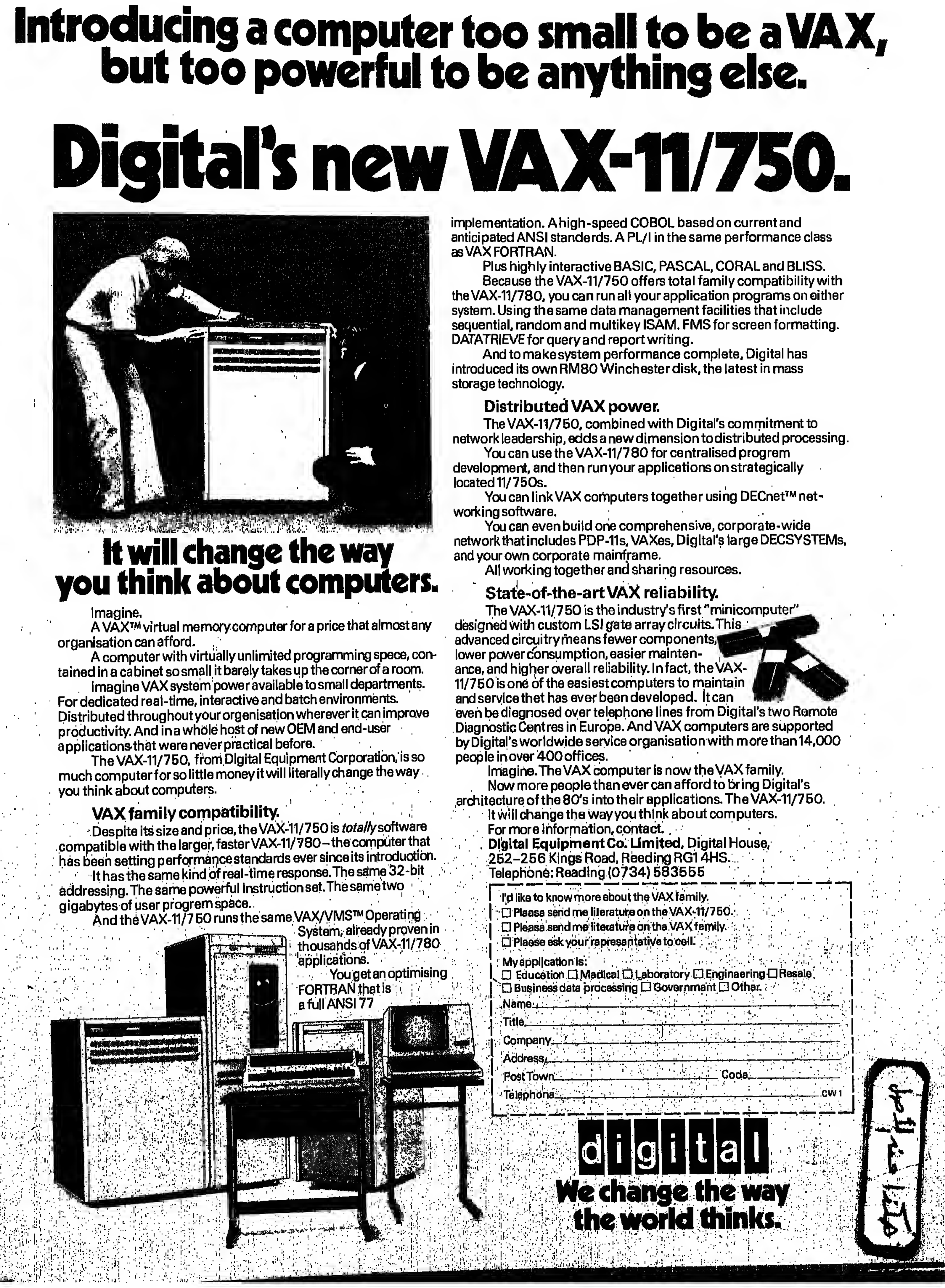
40
Like the 25 plus extra visual highlighting facilities – capable of simple business graphics £799

60
Same as 40 but with message page or modified data transmit £899

ADDS value means more reliability, more adaptability and a host of valuable standard features on all models including switch-selectable European Character Sets and Monitor

ADDS GRAPHICS
£750

tds


Introducing a computer too small to be a VAX, but too powerful to be anything else.

Digital's new VAX-11/750.

It will change the way you think about computers.

Imagine.

A VAX™ virtual memory computer for a price that almost any organisation can afford.

A computer with virtually unlimited programming space, contained in a cabinet so small it barely takes up the corner of a room.

Imagine VAX system power available to small departments. For dedicated real-time, interactive and batch environments. Distributed throughout your organisation wherever it can improve productivity. And in a whole host of new OEM and end-user applications that were never practical before.

The VAX-11/750, from Digital Equipment Corporation, is so much computer for so little money it will literally change the way you think about computers.

VAX family compatibility.

Despite its size and price, the VAX-11/750 is *totally* software compatible with the larger, faster VAX-11/780 – the computer that has been setting performance standards ever since its introduction.

It has the same kind of real-time response. The same 32-bit addressing. The same powerful instruction set. The same two gigabytes of user program space.

And the VAX-11/750 runs the same VAX/VMS™ Operating System, already proven in thousands of VAX-11/780 applications.

You get an optimising FORTRAN that is a full ANSI 77 implementation. A high-speed COBOL based on current and anticipated ANSI standards. A PL/I in the same performance class as VAX FORTRAN.

Plus highly interactive BASIC, PASCAL, CORAL and BLISS.

Because the VAX-11/750 offers total family compatibility with the VAX-11/780, you can run all your application programs on either system. Using the same data management facilities that include sequential, random and multikey ISAM. FMS for screen formatting. DATATRIEVE for query and report writing.

And to make system performance complete, Digital has introduced its own RM80 Winchester disk, the latest in mass storage technology.

Distributed VAX power.

The VAX-11/750, combined with Digital's commitment to network leadership, adds a new dimension to distributed processing.

You can use the VAX-11/780 for centralised program development, and then run your applications on strategically located 11/750s.

You can link VAX computers together using DECnet™ networking software.

You can even build one comprehensive, corporate-wide network that includes PDP-11s, VAXes, Digital's large DECSYSTEMs, and your own corporate mainframe.

All working together and sharing resources.

State-of-the-art VAX reliability.

The VAX-11/750 is the industry's first "minicomputer" designed with custom LSI gate array circuits. This advanced circuitry means fewer components, lower power consumption, easier maintenance, and higher overall reliability. In fact, the VAX-11/750 is one of the easiest computers to maintain and service that has ever been developed. It can even be diagnosed over telephone lines from Digital's two Remote Diagnostic Centres in Europe. And VAX computers are supported by Digital's worldwide service organisation with more than 14,000 people in over 400 offices.

Imagine. The VAX computer is now the VAX family.

Now more people than ever can afford to bring Digital's architecture of the 80's into their applications. The VAX-11/750.

It will change the way you think about computers.

For more information, contact.

Digital Equipment Co. Limited, Digital House,
252–256 Kings Road, Reading RG1 4HS.
Telephone: Reading (0734) 583555

I'd like to know more about the VAX family.
☐ Please send me literature on the VAX-11/750.
☐ Please send me literature on the VAX family.
☐ Please ask your representative to call.

My application is:
☐ Education ☐ Medical ☐ Laboratory ☐ Engineering ☐ Resale
☐ Business data processing ☐ Government ☐ Other.

Name____
Title____
Company____
Address____
Post Town____ Code____
Telephone____ CW1

digital

We change the way the world thinks.

MICRO NEWS

by Eileen Stainer

Philips launches first small business system

A MARKET move to coincide with the New Year has been made by the Dutch multinational Philips, with the introduction of its first personal computer for the hobbyist and small business systems markets.

Philips Data Systems plans to launch the Z80-based P2000 in Europe next month, although it was first shown to the public in May last year. It will be available in several configurations with prices ranging from £600 (3,000 guilders) to £3,500 (17,500 guilders).

The company broke into the video games market 18 months ago CW, July 5) with the launch of its G7000 Videopac computer which retailed at £150.

Philips considers the current value of the personal computer market to be £400 million (2,000 million guilders) a year. This figure is likely to triple by 1984 with the business and professional user becoming increasingly important, according to the results of research projects the company has carried out.

To cope with such a market, the company has decided to distribute its systems through its business equipment outlets. Philips predicts that sales will approach two million units in 1984.

At the top of the P2000 range for £3,500 the system comprises the basic microcomputer plus a printer, VDU and floppy disc drives; while for £600, the user gets a microcomputer with 4K bytes of internal ROM and 20K bytes of RAM memory, which is expandable to 52K bytes.

Software is supplied in plug-in ROM modules called ROM-keys which come in 4, 8 or 16K form. Application programs include text processing, data entry, book-keeping and graphics, which can be used with a colour monitor.

Basic and Pascal interpreter modules are available for the user to develop his own programs, which can be stored on Philips' mini-cassettes taking 120K bytes, or on mini floppy disc drives with a capacity of 218K bytes.

The company plans to supply a number of specific applications programs through approved software houses, which will also be available to do custom work.

In the upmarket version, Philips supplies a 12-inch, 80-character monitor, a daisywheel (25 characters per second) or matrix (80 cps) printer, and dual floppy disc drives housed in the monitor module.

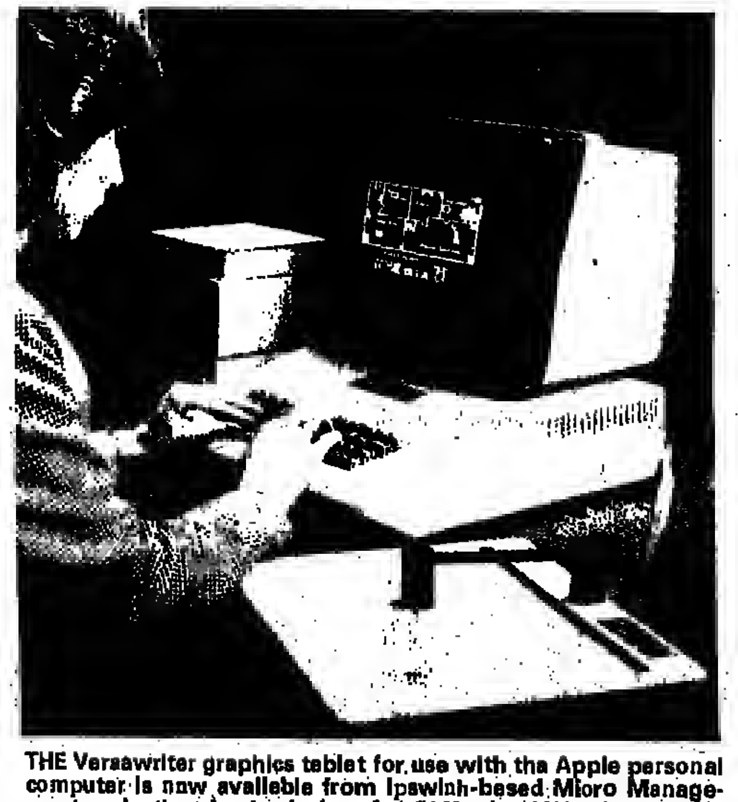
In the cheaper hobbyist version, the P2000 can be connected to a home television, giving a 40 character display using up to six different colours. An ordinary typewriter keyboard plus numerical keys comes with all configurations.

A Viewdata interface is supplied for information editing and storing, and this can be operated with a colour monitor. Modem and IEC bus interfaces are also provided.

MBM Ltd

IN a report headed "Builder's £25,000 program rewrite nightmare" in our issue dated December 11, 1980, we wrongly stated that Northampton-based distributors Midland Business Machines Limited (MBM) went bankrupt before it was taken over by Systime in January 1979.

MBM was in fact a successful and profitable company when it was taken over by Systime and we wish to apologise to the former directors of MBM for any embarrassment we might have caused them. The reference to MBM was incidental to the report, which was otherwise accurate.



THE Versawriter graphics tablet for use with the Apple personal computer is now available from Ipswich-based Micro Management and other Apple dealers for £149 plus VAT. An original drawing is placed under the upper clear sheet and the details are traced over, using the drawing arm.

DIGITAL
LSI-11/23
VT100-AB
EX-STOCK!
IBM 3101
TERMINAL RANGE
now available
(0494) 26271
Rapid House, Denmark Street,
High Wycombe, Bucks HP11 2ER
Telex 837931
Rapid Recall (Northern)
(0270) 627505
28 High Street, Nantwich
Cheshire Telex 36120
Rapid Recall

Good outlook for processor market

THE microprocessor and single chip microcomputer market will exceed 650 million units a year by 1985, according to a report issued by Creative Strategies of San Jose, California. In 1980 the figure was 115 million units, indicating a compound annual growth rate of 42%.

Entitled "Microprocessors/Microcomputers", the report defines five major categories of the industry: microprocessor chips, microcomputer chips, microcomputer boards, microcomputer nucleus systems and microcomputer development systems.

Each section will show rapid growth over the next five years, according to the report. Total sales of microprocessor based products will increase, with a compound annual growth rate of 32% from $1.2 billion in 1980 to $5 billion in 1985.

Microprocessor chips alone will grow at a compound annual rate of 35%, from $217 million in 1980 to $963 million in 1985. The report classifies them into three distinct types: simple control, general purpose and data processing.

The report states, however, that microcomputer development systems will become less important in the industry. Sales will decrease as a percentage of total industry sales from 18% in 1980 to 8% in 1985. The reason for this, according to the report, is that each existing MDS will support more and more chips.

The MDS market will still grow 14% over the five years from $218 million to $422 million. In units this means an increase of 18%, from 16,000 to 37,000.

In terms of market divisions, the report shows the communications sector having the highest growth rate of 33% a year. The market value will increase from $346 million in 1980 to $1.4 billion in 1985.

Business and eduction will grow from $371 million to $1.2 billion.

In terms of geographical segments, the US will lose market share over five years; now it takes 60% of world production, but this will decrease to 45%. Japan will increase from 14% in 1980 to 22% in 1985, with a compound annual growth rate of 44%.

64K RAM from Intel

FIRST quarter of this year should see volume quantities of Intel's 64K dynamic RAM which uses a redundancy design approach to improve yield. The device will have a 128 cycle refresh and will be housed in a standard 16-pin package.

The redundancy approach, also used by IBM and Western Electric in the 64K RAMs they produce for internal use, means that extra storage cells are incorporated on the chip. Defective cells are replaced by the spare cells during the test procedure of the devices, thus improving the yield.

The device will initially be offered with three access times; 150, 200 and 250 nanoseconds, but a 120 nanosecond version is planned for the end of the year. Initial price will be $40 during the first quarter dropping to $20 for fourth quarter delivery.

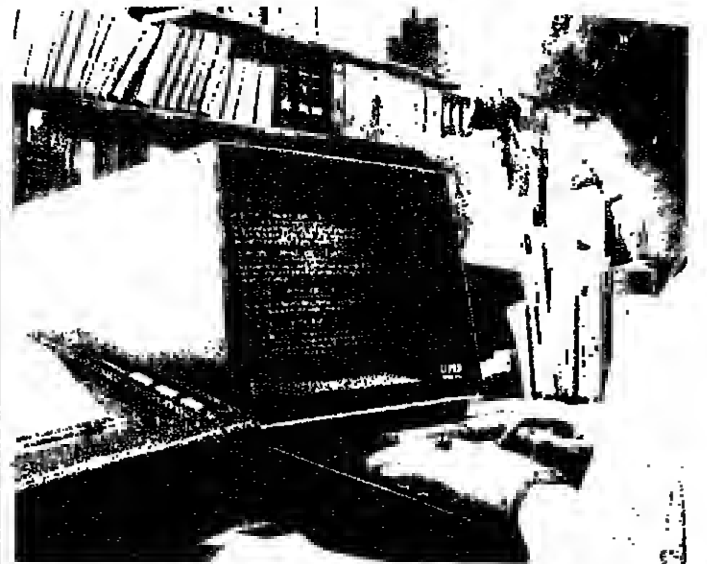
Apple II gets three months

APPLE Computer has been given another three months to bring the Apple II personal computer up to the approval of the US Federal Communications Commission. At the moment it does not comply with the Commission's technical standards.

With the Heath Corp, Apple filed a petition to the Commission, asking for an extension beyond the deadline of January 1, 1981 — already an extension on the original deadline of July 1, 1979. Both companies said that if it was not granted they would be forced to close down their plants.

The regulations were announced in November 1979 (CW, November 15, 1979), so the companies have had just over a year to make the necessary changes. The problems lie with the personal computers causing excessive radio interference.

A condition to the extension is that Apple must supply a warning label with each unit manufactured under the waiver, indicating that the equipment may interfere with radio and television reception. The user must correct the interference himself.



One of the Polis terminals in use in the House of Commons Public Information Office in Norman Shaw Buildings.

Commons online index gives backbenchers rapid access to facts

"A POSITIVE weapon" for the backbench MP in his struggles with Whitehall was how the House of Commons online index was described at its official launch by Philip Whitehead, chairman of the Commons computer sub-committee. The system, called Polis and provided on a bureau basis by Scicon (CW, April 10), is now up and running, giving MPs the "rapid access to facts" which Whitehead (Lab, Derby N) asserted was essential to MPs' work.

Since June 11,000 answers to Parliamentary questions and Ministerial statements have been loaded on to Scicon's Univac 1100 in Milton Keynes for access by Commons library staff using terminals in the Palace of Westminster and in a nearby office building.

Problems with floppy discs wearing out and the loss of a whole day's input owing to a lightning strike have been the only sizeable difficulties, and the costs have been kept well below budget.

Outside organisations will be allowed to subscribe to Polis if they are interested, using their own dial-up terminals, provided they are approved by the computer sub-committee. They will also be able to buy copies of the 9,000-term thesaurus that has been compiled.

Next year a current awareness service is to be added to Polis, providing MPs with weekly notification of items that fit their interest "profile", and outside organisations will be able to subscribe to this as well.

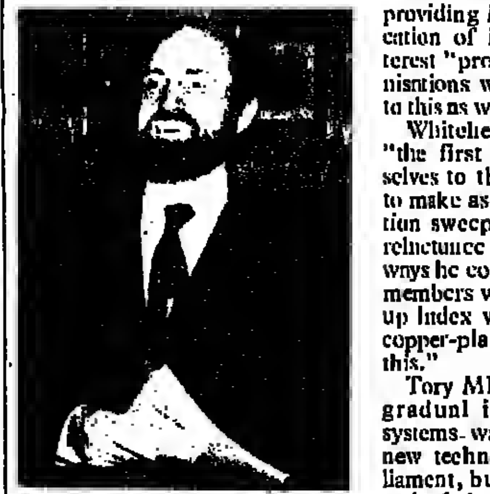
Whitehead described Polis as "the first step in adapting ourselves to the changes we will have to make as the information revolution sweeps over us all." On the reluctance of MPs to accept new ways he commented wryly, "Some members would like to see a back-up index written out in Victorian copper-plate for every scheme like this."

Tory MP Ian Lloyd agreed that gradual introduction of such systems was the only way to get new technology accepted in Parliament, but he added that "By the end of the decade, you won't recognise this place."

A contribution towards standardisation has been made in the adopting of the Euronet common command set for Polis' retrieval language. The Unidas retrieval software makes it particularly easy to use the thesaurus, switching back and forth between that and searches, commented Jane Wainwright, who is in charge of the project from the library end.

Government departments are interested in using the system, Whitehead remarked.

Other computer applications within Parliament are being investigated, and when the current process of switching Hansard to computer typesetting is completed, the possibility of a link between that and Polis will be explored.



WHITEHEAD ... "The first step in adapting ourselves to the changes we will have to make as the information revolution sweeps over us all".

Requiescat in pace?

CAN anyone offer a good home to a venerable Gamma 10? The last machine installed in the UK, 12 years ago, it is up for sale after being replaced at Berkhamsted School by a few megabytes of Apples.

Before its five years in the Groves of Academe, it was owned by Walker Crosweller, now part of IPC.

In its day, the Gamma 10 was a notable success story; launched in 1963 at Sicob by Machines Bull, over 2,000 were sold throughout Europe. The only other UK-based Gamma 10 resides permanently in the Birmingham City Museum.

The machine comes complete with all software, manuals, sorter, interpreter, five card punches and an enviable collection of spares.

Its needs are fairly simple — a modern office environment and a temperature between zero and 80° F. It requires a three phase power supply, and Roger Ford at Berkhamsted 5027 is open to offers.

DBMS launch

A DATABASE management system for Digital Equipment VAX 11/780 is to be released in Europe through Turnkey Software of Chalfont St Giles. The DBMS, called Data Boss /32 comes from Florida Computer Inc and is written in Fortran IV.

It includes a data dictionary catalogue, an English-like Query module, multiple index keys, multiple level password protection and other facilities.

Future plans include data entry and report writer options. Data Boss /32 costs £20,000, for VAX users running VMS operating system, Fortran IV and Sort 32.

Jitters in Texas over Daxko rival

REACTIONS from the Texas Instruments' sales force in the UK to the news that US company Daxko is to compete with it in the British market were so strong that they throw doubt on Texas' confidence that it could sustain a broader attack on its systems market, says Daxko president Ogale "Randy" Ray.

The news that Daxko intends to fly in Texas products to Ireland, then sell them on to systems houses in Britain and Europe, came in early November. Ray says: "Texas people were running around saying 'Oh my God, we're going to be wiped out, we're going to be wiped out'. They were on the phone to Austin (TI's US headquarters in Texas) twice a day.

"They made a mountain out of a molehill. As large as it is and as entrenched as it is, if Texas is that worried it shows up some deficiencies in their UK operation."

RAY ... "They made a mountain out of a molehill."

Confident

But Texas' UK marketing manager Dave Monk merely observes that "naturally" he was in touch with the US to check the background to Daxko's proposed activities — and specifically to make sure Daxko was not breaking its purchasing contracts with Texas. "If Daxko is adding value in significant measure then they would qualify under normal contract terms in the US", he says. "If they're planning to broker hardware and become a re-seller it is possible they wouldn't qualify", he adds, and says he remains very confident about Texas' sales.

In fact, says Ray, Daxko will be assembling in Ireland and in any case is only to compete with a very small part of Texas' UK market. It is aiming at the small OEM or systems house which takes a handful of Texas systems per year. These customers will be offered deals which Texas' price list only allows for much higher volumes, he says.

"We're about the same on price as the Texas list", confirms Ray, "Our advantage is in the 10 systems a year market because of our better discounting policy. We can give substantial profit margins — in the order of 40% — to these companies".

"We will supply software to OEMs or systems houses to allow them to be up and running with a product quicker." Daxko already offers standard financial packages on Texas kit, says Ray, and is currently having a banking applications package written in Dublin. It will be ready by the first quarter of 1981.

The outskirts of Dublin is the location for a plant (not Dundalk as previously reported) which will be used to assemble components flown in from the US. Some parts — cabinets, for example — are to be manufactured locally. Ray was in Ireland earlier this month finalising agreements with the Irish Development Authority and organising the factory site.

Monk counters that Texas' policy is to deal with any company, large or small, which can show itself to be a "quality company" which is financially and technically sound. He adds that discounts shown in OEM contracts are currently based on a dollar exchange rate of £1=$2.05, and that variations in this level are passed on direct. With the pound standing at over $2.30 in recent months this gives an even bigger current discount, he notes.

Target

Monk also points out that Texas is under no obligation to maintain hardware which contains subsystems it does not make.

The Daxko president says that his sales target for the first year out of the new facility is some $5 million, not the $10 million which UK representative Nick Ashton had envisaged. But this is still substantially more than the $1 million of sales to Europe in 1979.

Breaking down the jargon barrier

"WHAT's so special about computers?" is the title of a video programme aimed at breaking down the jargon barrier and improving communication between computer staff and users. It is released by Melrose Film Productions of London.

Intended mainly for managers and supervisors of user departments, the 34-minute production shows the sort of problems that occur when users and DP people talk and yet fail to communicate with each other.

Featuring four main characters — DP manager, managing director, marketing director and head of accounts — the production follows the development of an ill-fated stock control and order processing system.

The film is unsympathetic to the non-computer people. It shows Sunderland, the DP manager, trying time and again to impress the implications of the system on the other three. But all to no avail.

The marketing director, Gerram, is particularly awkward and early on he refers to Sunderland as Attoo Detoo. Gerram, however, changes his tune as he gets the wrong impression that the system will provide him with real time information. Sunderland tells him otherwise, but Gerram pays little attention.

Irwin, the managing director, is not much better. "What's so special about computers?" says Irwin. "That's what we're here for, to sort these problems out."

And so 12 months after the first meeting between the four of them, we see the firm, whose name and business are not specified, landed with a system which doesn't meet its needs, resulting in problems all round.

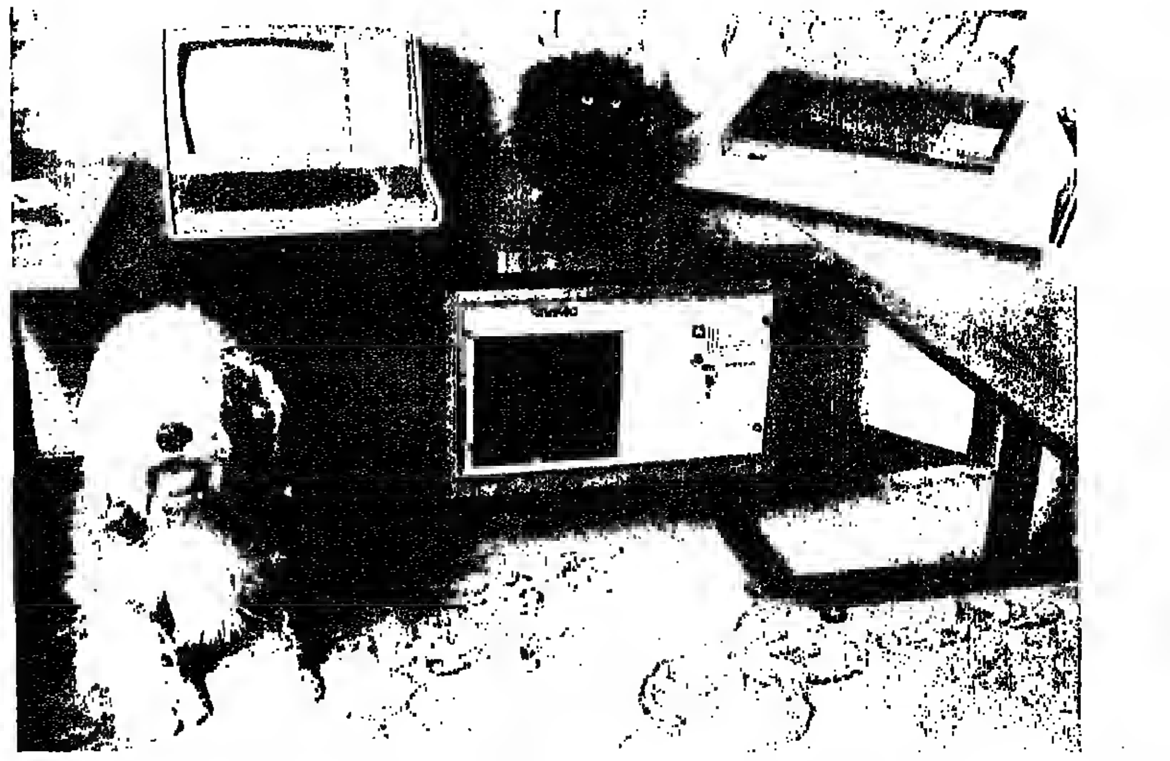
The production may be helpful to non-computer people, providing it is used, as intended, as part of a half-day course on computers. Previews are to be held all over the country, starting in London on January 13, and taking in Birmingham, Manchester, Glasgow, Leeds, Bristol and Southampton.

"What's so special about computers?" costs £425 + VAT and may be hired for £65 + VAT and £85 + VAT, for two and seven days respectively. It is available from Melrose Film Productions Ltd., 84 Lupus Street, London SW1 3EL. Tel 01-834 4584.

Costing system launched

A COSTING system aimed at first-time users in the printing industry has been launched by MAI, maker of the Basic Four range of small business computers. Called Compactaprint, the system uses many of the British Printing Industries Federation's recommendations for costing and reporting, such as reporting on slow-moving jobs and other kinds of exception and keeping cumulative costs of labour and materials charged to each job.

Configurations include a single terminal system running on a Basic Four Model 200 and a Model 410-based system for up to eight terminals. It can either be a stand-alone system or can be integrated with other accounting, order entry and word processing systems.



It *should* happen to a vet!

WHEN Fido next goes to the vet, all his details complete with treatment, vaccinations in store, owner's name, and perhaps, alarmingly, the bill, may be entered into the practice computer. Verifac, marketed by B & I Mini-Computer Systems of Stroud, is announced as the first system to handle all the admin details of the animal practice. In addition it will take care of the business headaches of VAT returns and purchase ledgers, and print out drug and treatment labels. Hardware consists of a VDU with keyboard, printer and micro with two disc drives. Prices start at £8,900 and include full training and tailoring of programs to practice requirements. B & I foresees the spread of Verifac to dental and doctors' surgeries.

AT THE CENTRE OF EUROPE'S
BIGGEST & CONCENTRATED
COMPUTER MARKET
COMPEC
EUROPE'81
CENTRE INTERNATIONAL ROGIER
BRUSSELS, May 5-7, 1981

Europe's leading showcase for minicomputers, peripherals, terminals and microprocessors attracted nearly 6,500 trade buyers to the 1980 event. Visitors came from 15 countries worldwide with the majority consisting of directors, managers, data processing managers, systems managers, systems analysts, programmers, technicians, buyers, engineers and consultants.

Compec Europe '81 is sponsored by the world's leading computer publications COMPUTER WEEKLY, SYSTEMS INTERNATIONAL, DATA PROCESSING and PRACTICAL COMPUTING with support from the leading Dutch publication COMPUTABLE.
Already the demand for stand space is outstanding. Ensure your participation in this prestigious event which serves the fastest growing sectors of the computer market.

FILL IN AND RETURN THE FORM BELOW

COMPEC EUROPE '81 STAND RESERVATION FORM
To: The Exhibition Manager,
Compec Europe,
IPC Exhibitions Ltd,
40 Bowling Green Lane,
London EC1R ONE, ENGLAND.
Please provisionally reserve stand space at Compec Europe '81 and send the undersigned more details.
Name: ....
Company: ....
Address: ....

PROGRAMMERS' PAGE

by Pamela Rowe

Eleven for 1981

BY the time the average programmer becomes one, he's usually given up making New Year resolutions. But for those few souls left with natural optimism here are some suggestions for 1981:

Read through the computer papers, particularly CW. It's surprising how much you can learn.

Enthusiasm for new projects is hard to maintain and even when felt, is sometimes concealed behind a cautious manner. Worth cultivating though, both for your own benefit and the light it sheds.

Standards – come to terms with the obscure bits that bring a glaze to your eye. It may take an effort to get past the terminology especially if it's not something you often use. But you can bet your boots that when you do need it, you won't have time.

Oops – mistakes are inevitable, but they can be cut down. Don't ever rush, unless it is a real emergency.

Learn a new language. Too late for evening classes now, but there are plenty of good books around.

Understand the analyst's need to amend, when he presents you with the tenth (or more) amendment to your mutilated program. He is only passing the pressure down the line.

Test ad nauseam for every conceivable contingency. Murphy's law states that any loophole will always come up during a live run.

1 and I, O and 0, Z and 2, S and 5. Make a note (written) always to distinguish between them, always use a sharp pencil, always write clearly, legibly and large.

Ops usually have good reasons for crashing your program test runs, even when it is only for lack of a nail (sorry, card). Annoying, frustrating, yes. But not a case for venting your spleen.

Notes – make them copiously as reminders to yourself and as records for those yet to be employed in the DP department. A few lines of info in the documentation or even better, comments in the program, can create instant dawn in the night of non-comprehension.

Stick to your guns when timescale and panics are not reasonable. As the last in the line before runtime any hiccups, delays, etc tend to accumulate in the programming schedule. Co-operation within the DP department is essential, but don't make the programmer carry the burdens of the world.

HAPPY 1981

Problem solving department

TO end the old year, an easy resumption of problem solving – gentle on your mind.

You're sitting happy with a stack of four floppies of different sizes balanced on a spike, large one on the bottom, graduating to the smallest on the top. Some joker in his mafia suit happens along with two more spikes and says "OK get those floppies over to the 3rd spike pronto, ending up in the same order."

You start to flap the floppies with a trembling hand when he raises a digit. "Hold it. The catch is you gotta move 'em one at a time, and a biggy can never sit on a small floppy." He swings round suddenly and growls, "And you can't put 'em on the floor or anywhere."

Even under current disadvantages it's not too hard a task and your chances of survival are good. So now try this one.

There is a fantastic security system at the place where you work. At the main gate DP staff are let in four at a time so that they can't mutiny, and on recognition each is given an electrical bleeper with a number and signal. All four are lined up with designated number 1 leading 2 and 3, and 4 trailing along at the back. In that order they are marched into the minefield between the gate and the computer centre. Luckily spreading across the explosive area is a safe Y of stepping stones. The four advance up the stem of the Y but are halted at the fork. Here they meet hazard (see Figure 1).

To gain admittance to the DP department and morning tea, the four must line up in reverse order, with No 1 at the centre and No 4 at the tip of one of the Y arms. The bleepers will then harmonise with the stones and the door roll open.

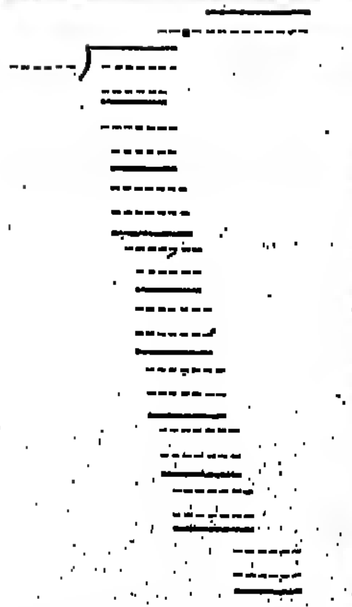
But, though they may use any of the stones to skip to their allotted place, pausing on an unauthorised one causes instant blasting (firing). The stones of course are too narrow for overtaking and each arm is identically mapped.

When you are successfully scanned (and still employed) work out the minimum number of moves required to complete the manoeuvre. Is there a déjà-vu feeling about the second problem?

Quite right. The two are essentially the same problem. By examining the tree of all possible moves they are pronounced isomorphic. Study, and solution, of one puzzle can be applied to its isomorphs. On the other side of the pen, different approaches made by one individual can be mapped from puzzle to puzzle, and transition time between substages of a problem, or between one puzzle and its isomorph measured.

On that cliffhanger may I say that next time focuses on the individual and his solution.

Puzzler



THIS MAMMOTH skeletal division sum contains no clues at all in regard to actual numbers identified, but there is a nine-digit recurring decimal in the quotient (marked here by the horizontal line), commencing one digit away from the decimal point. So the first thing to do is ponder on those characteristics which are common to all fractions producing recurring decimals.

If you think the right thoughts, the divisor will be less difficult to find than might at first be imagined.

See page 17 for solution.

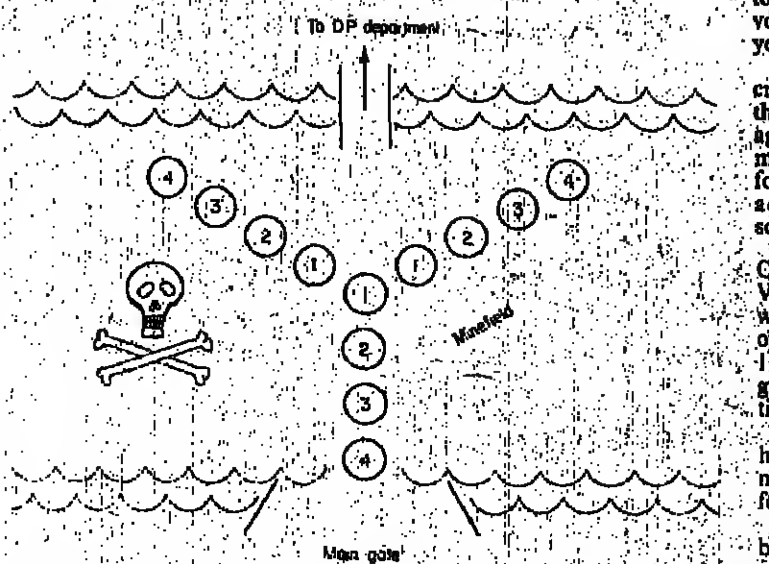


Fig 1. The Y-shaped pathway gives safe conduct through the minefield from the main gate to the DP department.

A quiet message in store for the shoplifter

SHOPLIFTING in the run-up to Christmas has been a cause for concern both for the overtempted or confused shopper and the struggling retailer. Now an American company claims to have found an answer in the shape of the Black Box, also known as the *Mark VI* Audio Subliminal Processor. This whispers, subliminally below the muzak, messages like "I am honest. I will not steal." When this is broadcast 3,000 times an hour across the store, it will, says its originator, Dr Hal C. Becker, reduce shoplifting.

Dr Becker's company, Behavioural Engineering, is in the business of altering human behaviour, voluntarily or the other way. Many psychologists, though, dismiss the whole idea, and there has been a continuing controversy over the rather inconclusive evidence, since the idea was first mooted 20 years ago.

Guide

Dr Becker is convinced, however, that his products do work and the theory behind them is sound. "The messages produced by the Black Box for example, *can* be used to guide human behaviour."

The Box uses digital speech synthesis circuit boards designed and programmed by Telesensory Systems, a privately-owned Californian company. The messages are formed by digital speech produced from encoded data. Actual speech is encoded, compressed and stored in ROM until required, when a synthesizer chip expands and reconstructs the data, converting it to an analogue signal to drive a speaker. A multiplier adjusts the volume to a flicker below the background music. The messages are inaudible – but only just.

Ethics

Telesensory can program the Box for a variety of uses. One interesting possibility is a subliminal "My job is important," aimed at office workers everywhere to make them work harder. Other installations may be in medical or dental clinics, banks, or travel agents (you *will* fly Pan-Am). It may also help in the traumas of giving up smoking or losing weight.

A group of researchers from Stanford University and SRI International founded Telesensory in 1970. Its first ventures were into high technology aids for the blind and mute, then six months ago the speech synthesis division was formed. Now the company relies on US government money to support some of its R&D work.

The ethics of subliminal broadcasting have come in for a lot of discussion. To date there is little in the way of laws or regulations governing how messages should be used. Becker concedes that once the Box is installed he has no control over its use. "The critical controls are not available to the front panel, but one could get into it and change the setting – it's not a bank vault."

Robert Ellis Smith, publisher of a newsletter on privacy in the computer age, believes that Becker's products are clearly open to abuse. "It's questionable if its dominant use could be called benign. Probably not."

Becker says that his company will only sell the Black Box to "good" customers, which means, he says, no religious or political groups.

Powerful

But who defines "good"? And if it is a question of programming people rather than machines, shouldn't they at least be aware of it? Becker believes that notices displayed to the public where subliminal messages are used, will cover the case. If he is right and his products do work, they will certainly be a powerful tool – or weapon – in hands untied by the law. At the moment this is all taking place in America, but things have a way of crossing the water.

Seems quite a contradiction to the current mood of consumer protection.

OP SPOT

by Paul Fisher

Now's the time to . . . stay put!

THINGS ain't what they used to be. Until recently everything to do with computers, with the exception of micros, was growing like Topsy. But the year's end has seen the routine optimism of many computer people tempered by an unfamiliar circumspection.

A trusty register of the health of any marketplace is the rate at which jobs change hands, and this has slowed considerably over the past few months. Computer staff and those who profit by their moving around, have all noticed the difference.

Squeezed

Ops now tend to hang on to their jobs because there aren't the opportunities to hop from one site to another. There simply isn't the volume of job ads that appeared a year ago.

It's the same story for the recruitment agencies. VLI is one of the largest private recruitment agencies in the country and its marketing director and co-founder, Anthony Lambie, readily acknowledges: "We're being squeezed."

At the beginning of the year Co-Operators, the operators branch of VLI, had 130 contractors placed in work ranging from data prep to ops management. There are now 115, and this is the first halt in growth since Co-Operators' formation in 1974.

Lambie reports that business has been hit during the last three months but he is busy with plans for the New Year.

VLI has traditionally split its business into permanent placements and contract work. In accordance with this division, Co-Operators dealt exclusively in body shopping, leaving long-term recruitment to VLI's regional subsidiaries. But from January 1 all operator recruitment, both permanent and temporary, is being merged into one group.

Current wages for temporary work start at £140 for an ordinary op putting in a 40-hour week and up to £240 for a JCL writer. Roger Haylock of Co-Operators says: "We can't get enough JCL writers because nobody has bothered to train them." He regards JCL writers as operators as they are involved with production work.

Weekly rates for permanent staff start at £120 and a shift leader with four years' experience could expect to earn between £9,000 and £10,000 a year. The high demand here is for network control staff.

Consultancies generally have no set policy when a client wants to put a contractor on the payroll. Lambie, for one, is anxious to stress that this is not a move which his own company resists, because future goodwill is worth more to business prospects than muddying wells with legal hassles. It's all a matter of negotiating a placement fee.

Lambie reckons that 1981 will be a difficult year but doesn't anticipate any mergers between the larger agencies. He thinks that some of the smaller outfits could go to the wall and says: "Two people can run a successful agency but when business is difficult, the small firms get a decreasing proportion of what is available because they have less marketing clout."

25% down

The internal amalgamation of permanent and temporary operator placement work is being promoted by VLI as a better service to job hunters but it should mainly be seen as a gathering-in of resources during hard times.

In Surrey, not a county well known for its dole queues, Trident Computer Services reports a similar drop in business. Trident's Chris Whetherly says: "With contractor ops we're 25% down on last year, and we're doing pretty well." Trident is maintaining a split between long term and contract work and the slackening of demand is attributed to two factors: first, the recession is having its effect; second, Whetherly says that the nature of operations is changing. The demand is for fewer but better ops who are able to work at a higher level.

Computer people are better off than most, and you can be sure the agencies will be plying their trade this time next year. I hope you are too – and wish you a happy and prosperous New Year.

Take care with your emotions

I WAS happy to receive a free copy of Auerbach Publications' Data Center Dialog, Volume 3, Number 6 has some universally applicable advice for ops managers which Op Spot will hand on completely free of charge.

Halfway through the newsletter, after a section entitled Infusing New Blood Into the Data Center, is the heading When to Use Emotions. "The goal of the DCOM (that is the data centre operations manager) should be to display emotion only when it is appropriate," it says.

So, if you're a cheesed off ops manager don't walk round with a soppy grin on your face. Having kept "hostility to a minimum" and having mastered the tricky techniques of face control, you can "use emotion to produce positive results."

You can also read on and take Steps for Decreasing Tension. The mind boggles, but this is achieved without artificial stimulation of any kind because the ops manager simply has to "ensure the data center is run as efficiently as possible."

Fingers

The longest and most helpful section grapples with the problem of finger pointing. "An age-old problem," it says, "in which all parties involved in a problem situation try to shift the blame."

What is to be done?

"The first step must be to stop the finger pointing." If your ops manager starts stepping on your fingers, you'll know why, but management should be warned that button pushing with the elbows and nose produces haphazard results.

We obviously must resolve to relax, organise and stop pointing with one or two fingers.

And as it's the time for resolutions, could the publishers spell "centre" and "dialogue" in English?

Perming the hair style

DON'T tell all your secrets to your hairdresser. Next time, confide in a computer.

A Norwich hairdresser, the Brian Robert salon, has just installed a system to ask clients 20 questions on the state of their hair and what they want done with it. On the basis of this it displays a graphic computer head on the VDU showing the stylist how to achieve the desired effect, and prints out advice on products, dilutions and hair-care.

Partners in the salon, Brian Seaman and Robert Smith, say that customers are very happy with the computer. "They are reassured by the scientific data – it's not just one stylist's opinion."

Asked if it was possible to fool the machine, Seaman said that if silly information was fed in, the computer halted and asked if you really wanted to carry on. If so, it flashed out an "advised not to proceed" message.

The installation was launched by Goldwell International which also supplied the existing program for perms and tints. Eventually the system will cover all types of hair treatment and be extended to look after the business side of the salon.

Partner Robert Smith measures the thickness of a client's hair to complete a perm program on the computer.

Viewdata software for Univac V77

PRIVATE viewdata software to run on Univac V77 series minis has been developed by London-based DTA Computer Systems, a systems house specialising in real time applications.

Univac is to market the system, which is priced from £14,000 for a 16-port 10,000-page version based on a V77/200 and is expandable to a 1,000-port system based on four V77/200s plugged into a V77/800.

Protocols have also been developed for the mini to front-end ICL, IBM or Burroughs mainframes.

No billing or statistical facilities are offered on the system, but its strong point is said to be its response time, with the possibility of a V77/200 responding in less than one second to all of its full complement of 256 ports when they are each requesting data every 10 seconds.

DTA's Dennis Thomas said that the queueing time depended only on how much buffer memory was allocated to data transfers. Although he had seen many large real time systems that had not worked because their designers had not understood the problems, it was surprising how much could be accomplished with just a little knowledge of queueing theory.

The system is written in the assembly language for Univac minis to run under the RTM real time monitor, and it can make use of the Pronto database access system which runs under the Vortex main operating system on the V77/800.

But it could be made available to run on other makes of machine, Thomas said, and alternative distribution arrangements are being investigated.

Enhancements being developed include working with autodiallers and auto-answer terminals, for applications involving automatic collection and distribution of information.

Pet tracks down shady car dealers

DISHONEST car dealers in North London are being tracked down with the aid of a Commodore Pet personal computer, originally installed at Camden Consumer Affairs Service to work out Weights and Measures calculations. This is one of several applications for the Pet, thought up by trading standards officers in about 20 different local authorities.

The Camden staff are using the Pet to find dealers who advertise for sale in the classified columns of newspapers, without stating whether they are dealers or private individuals: an offence under the Fair Trading Act. A buyer has more rights when purchasing from a dealer than he has buying privately.

All telephone numbers appearing in the advertisements are typed into the Pet, and any that appear three or more times are printed out for investigation.

The machine is also used for working out consumer credit table problems, although the Pet's main task is to handle the statistical calculations relating to the law on the contents of packages, which has become more complicated.

Magnuson looks at North-East

A DECISION on whether to build Magnuson mainframes at a 27,000 square foot plant in Washington, Tyne and Wear, is expected from the main board shortly.

If the go-ahead is given Magnuson expects to start production in September 1981 and the plant could also be used for repairs to European users' kit and microcode programming.

The initiatives taken by Newcastle University in DP are a major reason behind the choice of Washington, but the exact number of jobs to be created will depend on demand.

Meanwhile Magnuson recently added a new model to the top end of its IBM-compatible M80 family. Dubbed the *M80/44*, it matches the performance of the IBM 4341 Group 2 while costing £60,000 less, the company says.

Volume shipments of the 44 are not scheduled to begin until the third quarter of 1981, the same time as the start of 4341 Group 2 deliveries, but customers can order an existing Magnuson model now on 60-day delivery and field upgrade to the 44 during 1981.

One of the advantages over the 4341 Group 2 underlined by Magnuson is that the 44's main memory can be expanded in one megabyte increments to 16 megabytes while the Group 2 user is limited to choosing between two, four and eight megabytes.

The number of channels on the 44 can be increased from six to 16 and two of them offer the three-megabyte data rate needed to support the IBM 3370 and 3375 disc drives and their controller, the 3880.

The 44 supports DOS/VSE, VS1, MVS/SP and VM, the same operating systems as the 4341 Group 2. It can also run systems not supported by the IBM machine – DOS, DOS/VS and all releases of VSI and VM370.

The 44 outperforms the IBM 4341 Group 1 by between 1.5 and 1.7 times compared with ratings of 1.3 and 1.1 assigned to the existing M80/43 and 42 models. Magnuson quotes £160,000 for a 44 with six channels and two megabytes.

Unix takes the stage

TWO speakers from Bell Laboratories and a consultant from Onyx are prime attractions at a seminar on Unix to be held at Nottingham University on January 5.

Discussions will centre on using the time-sharing operating system on 16-bit micros. Developed by Bell Laboratories in 1971, the system is already popular on 32-bit minicomputers.

According to the seminar organisers, the one-day event should interest universities contemplating or already running courses on Unix and for actual and potential commercial users.

The seminar contact is Judith Fletcher, Keen Computers, 5 The Poultry, Market Square, Nottingham NG1 2HW. Tel: 0602 583254.

Job-creating system

A SYSTEM that is expected to go live in summer could create more jobs at the supply depots of the Northern Clubs Federation Brewery.

The £300,000 system will be based on an ICL 2903 and 2904 which are being installed currently at the brewery's Newcastle headquarters.

High spots of the system will be suites for plant maintenance and telephone sales. The latter application will be based on 11 video terminals, four at head office and one each at the Brewery's seven UK depots.

Coventry depot manager Bill Moir said that the projected expansion plans could add more workers to his depot's existing 20-strong workforce.

Northern Clubs Federation Brewery was formed in 1919 and sells to working mens' clubs primarily, but began nationwide distribution this year. Its processing is done at present by a bureau and the brewery plans to telephone sales, purchasing stock control wages applications to the new system.

MORE OF EVERYTHING AT...

PERIPHERALS 81
SUPPLIERS EXHIBITION

The West Centre Hotel,
Lillie Road,
Fulham, London
April 1-3, 1981

SO SUCCESSFUL was the 1980 Peripherals Suppliers' Exhibition, that the organisers have had to make it bigger in every way for 1981.

MORE TIME — An extra day; three instead of two. Attendance in 1980 was treble that of the previous year and in the opinion of the exhibitors the *RIGHT* people attended.

MORE SPACE — Half as large again to accommodate all the companies that want to exhibit — already over 60 per cent of the 1980 exhibitors have re-booked.

AGAIN — Peripherals will bring together suppliers and buyers of technically sophisticated computer equipment in the relaxed atmosphere of a first-class hotel exhibition suite.

AGAIN — Peripherals is presented by the Peripherals Suppliers' Association and sponsored by "Systems International" the prominent monthly computer journal of IPC Business Press, the world's largest complex of specialist and business journals.

IF YOU WOULD LIKE MORE DETAILS — FILL IN AND RETURN THE FORM BELOW

To: The Advertisement Manager, Systems International, Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS. Please send me further details of Peripherals '81.

Name:
Company:
Address:
Tel No:

Appointments Appointments Appointments

THE NEWSPAPER COMPUTER PEOPLE RELY ON

COMPUTER WEEKLY

Classified Department Quadrant House The Quadrant, Sutton, Surrey SM2 5AS

Box Numbers: Should be addressed to the box number in the advertisement c. o Computer Weekly at the above address

Classified Rates: £19 per scc
19 x 3 cols = £872 39 x 3 cols = £1.470
Half Page (19 x 7 cols) = £1.530
39 x 4 cols = £1.792
Full Page (39 x 7 cols) = £2.900

Copy Deadline: 3 30 pm Monday prior Thursday publication date Complete artwork up to 11 am Tuesday Advanced space reservation is advisable

LONDON 01-661 0121 (8 lines)
Chris Prior Assistant Classified Manager
Ken Wallord Classified Supervisor
Neil McDonnell Consultancies
Ian Faux Consultancies
Julie Hannaford Consultancies
Dorian Smith General Appointments
Gillian Johnson General Appointments
Kevin McOwan General Appointments
Peter Regis General Appointments

MANCHESTER/GLASGOW
Owen Kelly 061-872 8861
Cecil Aiken 061-872 8861

BIRMINGHAM/BRISTOL
Vic Sherel 021-356 4838

Classified Production 01-661 3500 Ext. 3104 Steve Lever

datascene

DATASCENE ARE FIRST

ANALYST/PROGRAMMERS

Herts. **to £10,000**

Our client is a well-known software house based in Hertfordshire and are located within easy reach of North London, Watford, Luton and the M1.

The current hardware consists of IBM System 34 computers plus a range of mini computers. The main area of activity revolves around first-time users. Application areas are extremely varied and successful applicants can expect a diverse and rewarding career path. The areas of involvement are the development of RPG II systems but other project areas include Basic + and Cobol.

If you have upward of 18 months' experience of either RPG II, COBOL or BASIC + and you have had systems experience albeit limited, then the company concerned would like to see you. You should have the ability to communicate at all levels and have clients liaison capabilities.

In addition to an above-average salary the company can offer 4 weeks' holidays, car expense account and car-parking facilities. M.4388

ASSEMBLER PROGRAMMERS

Central London **to £10,000**

A very successful business in the publishing industry requires Assembler programmers to complete its small and friendly team.

The current hardware consists of a 360/50 working under DOS and GRASP but this is expected to be upgraded in the New Year to a 4331 using DOS/VSE.

Successful applicants will be expected to familiarise themselves with current applications but will principally be involved in new work.

The company is engaged in the mailing of company products, the maintenance and updating of their mailing lists, the continuation and enhancement of their accounting routines with complete services to the publishing industry.

Their requirement is for IBM Assembler programmers who have the necessary experience to undertake projects with the minimum of supervision and candidates who fulfil this requirement may have as little as 18 months using Assembler.

Salary will be based on experience. The company also offer 4 weeks' annual leave and season-ticket loans. D.4895

SENIOR ANALYST/PROGRAMMERS

Borehamwood **Negotiable**

This company is soundly established and extremely successful in the area of selling and support of mini- and microcomputers, particularly in the commercial, first-time user market-place.

There are three positions available of which two will be for the support team covering the general London area and one covering Herts. and East Anglia.

Applicants for these posts must possess a good working knowledge of basic accounting applications and will have controlled at least one major project accounting applications and will have controlled at least one major project where supervision of a support team was necessary. Proof of ability to liaise and effectively deal with clients and the associated areas one would expect with project control will be an advantage.

The successful applicants will join a fast growing company which offers excellent career development opportunities with all necessary additional training.

The company package includes a very competitive salary, car allowance, expenses, annual bonus, 20 days' holiday per annum, free life insurance and pensions schemes. R/4897

PROGRAMMERS ANALYST/PROGRAMMERS

City **£6-£10,000**

Several banks and finance houses in the City of London are looking for Programmers, Senior Programmers and Analyst/Programmers as follows:

INTERNATIONAL BANK (West Central), operating twin PDP 11, seek experienced staff at all levels for development of systems in the New Year. Applicants should either have considerable AIMS experience or alternatively exposure to BANKING SYSTEMS in a company using BASIC +, BASIC + 2 or COBOL.

COMMODITY BROKERS (East Central) offer 'ground floor' opportunities in a new PDP installation for top-quality BASIC + 2 programmers and analyst/programmers. A purpose-built suite is being prepared and conditions of employment will be superb.

MERCHANT BANK (East Central) seek a programmer to supplement their existing team. A large PDP installation running under AIMS provides a good opportunity for young, lively programmers who must be able to demonstrate AIMS or BANKING APPLICATIONS experience. Each of the companies mentioned provide very good employment packages which include RESTAURANT FACILITIES, LOW-INTEREST LOANS and either MORTGAGE SUBSIDY or BONUS. R4816/20

SENIOR ANALYST/PROGRAMMER

London, City **to £12,000**

This well-known merchant bank are based in the city of London and are well served by public transport. They have recently taken delivery of an IBM System 34 computer which will serve all areas of the bank's activities. The person appointed will work initially on his or her own and liaise direct with the user departments to identify exact requirements, feasibility studies will include financial modelling and investment management. It is expected that the first phase of development will last at least one year.

The ideal person will have considerable experience as an analyst programmer using RPG II, he or she will also be able to show a mature approach and possess the ability to liaise with users at all levels.

The bank offers a considerable employment package as one would expect from a leading merchant bank and further details on this position are available by ringing Datascene quoting Ref. M/4972.

PROGRAMMERS/SENIOR PROGRAMMERS

Surrey **HP 3000** **£6.5-£10,000**

Two internationally-known companies based in SURREY have vacancies for COBOL programmers ideally with HEWLETT-PACKARD experience. Some exposure to DATABASE is preferred and it is essential that applicants have a minimum of two-years' experience gained in a COMMERCIAL environment. Typically, those interested should have worked on Mini-based application areas such as ORDER ENTRY, INVENTORY CONTROL AND FINANCIAL LEDGER SYSTEMS. Work at both sites is of a DEVELOPMENT nature and excellent opportunities for CAREER development and ADVANCEMENT exist for successful applicants. SENIOR programmers should be able to demonstrate around four years' experience which must include recent supervisory responsibilities. Systems analysis experience, though not essential, would be a decided advantage. A wide range of company benefits are available including either restaurant facilities or luncheon vouchers, health care schemes and in one case a flexi-time working plan. Relocation expenses may also be reimbursed where appropriate.

D.4790

PROGRAMMER/ANALYST

West Sussex **to £7,000 + review**

Our client specialises in clerical and financial routines for specialised industries.

The current hardware comprises an ICL 2904 operating under George II.

Applicants, who should have a minimum of 2½ years' COBOL programming on ICL 1900 or 2903/4 machines and who should also have a knowledge of ICL software, will have the advantage of working closely with and understudying the systems analyst. Experience of analysis work would therefore be an asset.

A negotiable salary of up to £7,000 is offered which is dependent upon experience but which is subject to review in April, 1981.

In addition the company offers a comprehensive benefits package which includes advantageous house-purchase facilities, a generous holiday allowance, sick pay scheme, company pension fund and a subsidised restaurant.

Flexitime is used within the basic 35-hour week, above which overtime is paid at favourable rates.

D.4844

ANALYST

Hampshire **c. £7,500**

A leading name in a wide variety of electronic engine controls, fuel gauge systems and ancillary controls require an analyst to complete their small team.

The current hardware consisting of a 1900 machine is to be upgraded to an ME29 which is still to be installed.

A complete package of both financial and manufacturing systems has been running successfully for some time and the analyst will join the team at a time when existing programs have to be converted and the next phase of development begins. This will cover the introduction of on-line working and the establishment of a totally integrated accounting system.

The successful candidate will probably have 2 years' experience in the preparation of specifications although less would be accepted for any suitably qualified candidate. Experience of Sales Order Processing would be an advantage.

In addition to the basic salary the company offers a pension scheme, a subsidised restaurant and profits-related bonus.

D.4837

(3887)

Datascene International Limited,
Sceptre House,
169-173 Regent Street,
London W1R 7FB. Telex: 25851.

datascene

01-439 7871
24 hour answer phone.

Computing Services Association

THORBAR
A DIVISION OF INBUCON MANAGEMENT CONSULTANTS LIMITED

THAMES VALLEY

OUR CLIENTS ARE A SUBSIDIARY OF A MAJOR U.K. AND INTERNATIONAL GROUP. THEY OFFER SPECIALIST CONSULTANCY SERVICES WITH A HIGH REPUTATION IN THE U.K. MARKET PLACE AND WISH TO FILL THE FOLLOWING APPOINTMENTS:

SOFTWARE MANAGER	CONSULTANT	PROGRAMMER
c.£12,000 PER ANNUM CAR ALLOWANCE	c.£9,500 PER ANNUM – CAR ALLOWANCE	c.£9,000 PER ANNUM – CAR ALLOWANCE

IF YOUR BACKGROUND AND EXPERIENCE RELATE TO THE FOLLOWING REQUIREMENTS, CALL OR WRITE TO US NOW TO ARRANGE AN EARLY INTERVIEW

1. A strong IBM background with sound knowledge of working with Database and CICS software.
2. Experience associated with the design and/or implementation of Word Processing Hardware/Software although not essential, will prove highly attractive.
3. The ability to work well with all levels of user management and other personnel.
4. The desire to be associated with development in an environment able to utilise technical skills to the full.

1. Sound background in the design and implementation of Real-time and on-line applications based upon mini computer hardware.
2. Programming background having used CORAL, ALGOL or PASCAL.
3. Currently working for a mini computer manufacturer or Software House in a similar role.
4. Self-motivated with the ability to undertake total project responsibility without supervision.

1. CORAL, ALGOL or PASCAL programming background.
2. Experience from working with technical projects incorporating Real-time/on-line applications based upon mini computer hardware.
3. The ability to develop and progress your career within a technically orientated environment.

THE ABOVE OPPORTUNITIES OFFER ATTRACTIVE CAREER PROGRESSION FOR THE FUTURE WITHIN A COMPANY COMMITTED TO DEVELOPMENT AND GROWTH IN 1981

INBUCON MANAGEMENT CONSULTANTS LIMITED
D.P. Appointments & Contract Personnel,
Greenock House, 19 Cuckfield Road, Hurstpierpoint,
Sussex BN6 9RP. Telephone: Hurstpierpoint (0273) 833848.

(3801)

INBUCON

NEW YEAR NEW JOBS

R19 Salesman — c. £18k
on quota no top limit.
LONDON, MIDLANDS, NORTH
Dynamic expansion OEM.
Exceptional growth, commercial shopfloor/word processing systems.
Excellent "KIT."
Applicants
Real salesmen Commercial Systems knowledge, able to take over existing productive territories in shortest possible time.

R20 Engineers — £ Neg.
LONDON, BIRMINGHAM, MIDLANDS
NORTH WEST & NORTH EAST
Company
Market leader. Mini/Micro top grade equipment. Excellent facilities.
Many advancement opportunities.
Applicants
Minimum 2-3 years' experience Mini/Micro.

R21 Salesman — £9k Base
MANCHESTER
Company
Data Communications market leader. Exciting products dynamic growth patterns.
Applicants
25-35, minimum 2 years' sales experience. Able to sell to Communications Design Engineers. Will consider outstanding commercial experience.

R22 Pre/Post Sales Support — Up to £12K
LONDON, MIDLANDS, NORTH
Company
Market leader. Topclass software. Excellent earnings package progressive career paths.
Applicants
Real Business Systems experience. Must be able to communicate at all levels. Applications experience — Commercial or Financial (banking) or Data Communications.

Reply to Leeds (0532) 774040
24-hour enquiry recording

For further details please contact:
NIC POLAND
TYLIN PEOPLE
A division of Tylin Management Systems Limited
[illegible] House, High Street, Croydon, CR9 3NH
01 [illegible]

TYLIN

A member of the TATE & LYLE GROUP (3884)

Members of Computing Services Association

THE UNIVERSITY OF SUSSEX

PROGRAMMER
(Male/Female)

Graduate Programmer required in the Computing Centre for an initial period of two years to join the team of programmers implementing management information software, applications and systems for the computing service.

The University is replacing its ICL 1904S system, during 1981, with a linked system of three large Digital VAX 11/780 computers, and this post has been created to assist in providing transition systems, and setting-up the user services for our new computing services.

The appointment will be made on the Other Related Faculty scale £5,505-£9,598 per annum.

Further details and application forms can be obtained from the Staff Records and Recruitment Officer, Sussex House, University of Sussex, Falmer, Brighton, BN1 9RH, or telephone Brighton (STD 0273) 606755, Ext. 433. Closing date, Monday, January 19, 1981. (3888)

RESEARCH FELLOW

Break new ground. Opportunity for higher degree work. A three-year development programme in computer-assisted-learning for diabetic patients in the Department of Endocrinology, Charing Cross Hospital calls for a graduate with computing qualification, preferably with background in education or health.

Starting salary £5,714 including London Weighting. Further details from Medical Personnel Officer, Brandenburgh House, 116 Fulham Palace Road, London W6. Tel: 01-748 2040, Ext. 2983. Closing date, 6th February, 1981.

[illegible]

MYRIAD

SYSTEMS ANALYST

C. LONDON **£8,000 to £11,000**

An outstanding opportunity exists for a Systems Analyst to join the development group of a highly successful international organisation, with its headquarters located in Central London.

The group is responsible for the development of an interesting and varied range of new systems for the investment trusts and bonds aspect of the company's operations throughout the U.K. and Europe, providing vital business information to more than 180 users. An extensive communications network links the users, facilitating rapid interchange of information and providing each location with remote processing facilities.

This is a first-class opportunity for Analysts seeking a career move to gain valuable experience together with the opportunity for project leadership in a dynamic organisation.

Prospects for future career progression are excellent providing scope for individual development, and our client envisages a high starting salary together with excellent fringe benefits.

REF: E1/0101

MYRIAD APPOINTMENTS LIMITED
30 Fleet St London EC4Y 1AA Tel 01 353 0981 24 hrs

CONSULTANTS ANALYSTS PROGRAMMERS

Croydon
London/City

Salaries to £15k

We have been retained by our client, a major international Services Company to help recruit a number of key people at all levels to fill vacancies at their London offices.

All positions require at least 2 years' practical experience of Systems and Programming work. Candidates should have a prime interest in developing systems and solving business problems.

Flexibility is vital as our client mixes programming, systems work and consultency, therefore using each person's skills to the full.

Successful candidates are expected to participate fully in the development of the company, and as all promotions are from within, candidates should be positively career conscious.

Excellent salaries and attractive benefits are offered by this fast-growing company which include: Share Purchase Scheme; Free Medical Insurance, Free Life Assurance, Free Pension, Profit-Sharing Scheme, Relocation Assistance, as well as influence in company policies.

CW 1/1

SENIOR PROGRAMMER

Dublin **£8,000-£10,000**

An established International manufacturing company on the north side of the city requires a competent Programmer who has the ability to advance quickly.

Expertise in RPG II is the main requirement. However, experience of interactive systems, the manufacturing process or database techniques would be helpful for the career that is envisaged for the successful candidates.

Our client will pay a top salary for the right candidate, together with other excellent benefits.

CW 1/2

SYSTEMS DESIGNERS PROJECT LEADERS

North Hertfordshire

We wish to recruit on behalf of an International design and manufacturing company — a market leader in the Process Control Industry.

Our client develops computer systems using their own hardware and software products built around PDP-11 processors.

A real opportunity exists for Systems Designers and Project Leaders to develop packages and products.

Candidates should have the ability either to project teams or design software systems.

If you have been working in: Multi-Tasking; Data Communication Systems; CPU buses and peripherals or Automation Systems, we should like to hear from you.

Excellent salaries and generous relocation assistance are offered plus the usual benefits associated with a company of such high standing.

LONDON: 8a Lower Grosvenor Place, London SW1
Telephone: 01-834 7105, Telex: 918582

DUBLIN: Canberra House, 24 Lower Leeson Street
Dublin 2
Telephone: (0001) 789577

Computing Services Association

CW 1/3

PROGRAMMER SYSTEMS/ ANALYST

Dublin **£8,500 + Mortgage Assistance**

A leading financial institution in Ireland is installing an IBM 4341 in 1981. To complete the development team Programmer/Analysts are required.

Candidates with 5 years in Data Processing are needed, of which at least two should have been using Assembler language, preferably IBM. Additional training in new techniques will be given.

Besides an excellent salary and low cost mortgage, other benefits in this package include a generous pension scheme.

CW 1/4

Analyst Programmers & PROJECT LEADERS

London Based **to £11,000**

A London-based European Systems House is seeking Analyst/Programmers and Project Leaders for their diverse operations in the UK, Germany and Holland.

Their business is mainly based on technical projects in the prime industries. Plant Process Control, Designing Minicomputers for the North Sea Oil/Petro Chemical Industry; Laboratory Automation; Mechanical Handling; Medical Systems and H.E.P. equipment are examples of their projects.

Our client is interested in candidates who have real-time mini computer experience and have worked on the following software:

DEC
Honeywell
Ferranti
Data General
Intel
Philips

Familiarity with PDP RSX11 is an added advantage, and a knowledge of several high-level languages including ASSEMBLER is necessary for these positions.

Competitive salaries plus generous benefits are offered which includes: Profit Sharing Schemes, Free PPP Medical Insurance, Relocation Assistance, and for the more senior people, a car is also included in this package.

CW 1/5

SENIOR SYSTEMS ANALYST SYSTEMS ANALYST/ PROGRAMMER

Dublin

Senior Systems Analyst
£10,500-£11,500 + Bonus
Systems Analyst/ Programmer
£9,000-£10,000 + Bonus

Our client, a market leader with a turnover of just under £100m, requires additional Data Processing personnel for major developments over the next 4-5 years.

The Senior Systems Analyst will report to the S & P Manager and the successful candidate must have at least 3 years' commercial systems experience and be able to develop new systems from scratch.

The successful Systems Analyst/Programmer will be responsible for specifying detailed systems designs from business specifications and be involved in all phases including programming and implementation. At least 3 years' systems design, plus programming in ICL COBOL is required. Progression to full Systems Analyst is assured.

CW 1/6

SYSTEMS ANALYSTS ANALYST PROGRAMMERS PROGRAMMERS

Middlesex

An international computer company wishes to recruit a number of staff from all levels to help design, produce and market their electronic Data Processing systems.

Our client's marketing and service organisations cover over 25 countries with emphasis on the USA and Europe. Manufacturing is carried out in Ireland and Germany for the European markets. Research and development play a major role in the European network.

Systems Analysts with 3 years' commercial systems and design experience are required. Knowledge of COBOL and BASIC is necessary and candidates should be capable of working in a sales environment. You will probably be involved in manufacturing or be employed with a Software House.

Analyst/Programmers and Programmers with 2/3 years' programming and systems experience in BASIC and COBOL are also needed.

If you are interested in working for this highly motivated multinational company, and would like to earn an excellent salary, coupled with the usual generous benefits associated with an organisation of this type, we would like you to contact us.

CW 1/7

S/34 RPG II PROGRAMMER/ ANALYSTS IN CONSULTANCY

Dublin **£7,000-£10,000**

Our client is a major Irish accounting and management consultancy practice, employing over 550 people and providing a comprehensive range of professional services to Irish and international companies.

You will be required to work on a variety of Business systems being developed on RPG II for outside clients.

If you have at least 18 months' experience of RPG II, our client will be very interested but if you have years' plus, they will still want you and will pay more! IBM System 34 experience is of particular interest.

Successful candidates will be offered a position in line with their experience and a future working to high professional standards in a company committed to individual programs for training and development.

CW 1/8

SOFTWARE INNOVATION CONSULTANTS AND PROGRAMMERS

Holland Salary up to 90,000 Guilders

A market leader in design and implementation of software systems in data communications wish to expand their Project Team.

Specialising in commercial, industrial and banking systems, a number of positions are available from Analyst Programmers to Senior Consultants.

In addition to a degree background, it is important to have had experience of data communications software using mini computers.

Major projects actively engaged upon include real-time (process orientated) systems switching and data transport network.

The Company offers in addition to a substantial salary, 1 full overseas relocation expenses, 2 holiday bonus, 3 resettlement advance, 4 initial accommodation allowance for you and your family, 5 assistance with house purchase, 6 medical attention scheme, etc.

You can also expect to visit our client in Holland prior to final contract.

CW 1/9

CONSULTANTS

West London Based

Our client wishes to recruit an experienced Consultant to work in its first-class Bureau Services.

The successful applicant would be working in a small department which holds total responsibility for the company's user support division.

All our client ask from you is wide IBM MVS experience and the ability to deal with a large business system. The chosen candidates would be involved with all the Sales, Support Management and Marketing for this large Services organisation as well as being familiar with a consultency and managerial role.

The successful candidate will be offered an above-average salary with the following additional benefits: Pension Scheme, BUPA, Sports/Social and Subsidised Meals.

If you would like to have interesting and varied work within this fast-moving company and be guaranteed excellent career prospects, please contact us.

CW1/10

(3898)

New Year — New Jobs

Les Clark is manager of recruitment services with Knight Programming Support. Although he has reservations about the immediate future he says he is "bullish".

'Demand is still there for good people in 1981'

Les Clark

PAUL FISHER: Can you tell me what has happened in your business this year and give me your thoughts on the immediate future?

LES CLARK: I would say that the contract market, which is basically Knight's strength, has been fairly flat for most of this year. In the Christmas run up period, we experienced a lot of activity and we are anticipating a mini-boom on the contract side in the New Year.

PF: Starting from January?

LC: Yes. We've got dozens of companies looking to take on contract people in the New Year. What tends to happen is that financial years end on December 31 or March 31. The companies have to work within their budgets but when they get their new allocations — especially some of the American companies — away you go as they open up new projects.

Overseas

PF: Has the recession made much difference to you?

LC: Yes, we've felt the draught like everybody else. In terms of Knight Programming we have an advantage that many people out in the marketplace don't have. We can change. During a recession we focus our attention on the sectors of the market which aren't being affected so much. We can go for growth areas overseas and we've opened a New York office this year. To some extent our overseas offices are a hedge against recession although the strength of the pound has hit us. Half of Knight Programming's turnover is from outside the UK.

PF: Is that 50% of placements.

LC: No, I'm talking about total group turnover. Placements are 90% UK, I would say.

PF: Do you see contracting as having a healthy long-term future?

LC: There will always be a demand for contractors in certain specific situations. If you have a conversion from, say a 1900 to a 4300 you will need a lot of basic manpower over a six to eight months period. Conversions are a prime target for our contract marketing. Other areas are databases and the highly technical parts of computing.

PF: Has contracting changed?

LC: It isn't pioneering any more. We've got contractors who have been with us for seven years. We keep rolling them round and can offer them almost as much security as they would have had if they'd been in a full-time job.

Risk factor

PF: Do you offer pension facilities?

LC: No, we don't. We're looking at a health insurance scheme.

PF: And holidays?

LC: No, we don't give holidays. That's the nature of the game. Contractors are earning a premium over the permanent market rates and the risk factor of being out of work is part of that.

PF: What about your permanent placements?

LC: The permanent side is the less substantial of Knight Programming's activities and only accounts for 10% of our turnover. Taking our 1980 year to date sales compared to our 1979 year to date sales we have a 30% increase on permanent placements.

Looking to 1981, I would see that trend continuing. We've opened up a regional office in Birmingham because there is a lot of business up there.

Our regional developments have helped to contribute to the increase in permanent sales.

PF: Are there any particularly sick bits of the market?

LC: I would say operations is a sick bit of the market. The permanent market, I suppose, can be split between operations on the one hand and systems and programming on the other.

Optimistic

The operational market is dying and although we make a living, I don't see it taking any significant upturn.

PF: Is that due to the recession or to technical changes?

LC: Both. In terms of 1981, I wouldn't anticipate any extra mileage in the operational side of the business.

PF: And programming?

LC: On the programming side, I would be cautiously optimistic. We've got a lot of vacancies. If 500 of the right people walked into this London office today we could place them. We could place 100 people through our Manchester office and 100 through Birmingham.

There's always a market for good people who, for instance, know about CICs, IMS and DL1. In a recession, we gear ourselves up to possibilities at the more senior end of the market and there is still a lot of activity at that end. We put in a recent ad for a data processing manager and had over one hundred good replies.

PF: What about school-leavers?

LC: The market for school leavers is a very cruel one. It is unsympathetic to TOPs course trainees.

PF: Why is that?

LC: We are an agent and obviously fulfil our client's requirements. If our clients want trainees, they are falling off the trees so they don't need to use us.

Responsible

PF: Where do you think the responsibility for training lies? Is it with the schools, the companies, the agencies possibly?

LC: When times are hard, people tend to regard training as an expendable overhead. Schools are more aware of computing now and a lot of curricula contain computing studies.

PF: Would you like schools looking to the marketplace and saying, for instance, that Cobol programmers are needed?

LC: They do and nobody wants to take them. I've interviewed TOPs people who are mature and dying for a job, but nobody gives them a chance. They're away once they get a couple of years' experience. I don't see any softening in that situation in 1981.

PF: Does everybody you place have experience?

LC: Yes. On the contract side, we won't touch people until they've had about four years' experience. If we're putting out contractors to clients, they would demand from us that they've got certain levels of experience.

PF: Are wages still rising?

LC: Yes. I would expect that trend to continue at around 20%.

PF: Do you predict any mergers within the agency business during the next year?

LC: Mergers? I don't know. Our rates have increased over 100% in a 12-month period and we can't pass all of that to our customers. So, agencies in general are having a particularly bad time.

PF: So are you sitting around biting your nails?

LC: Not at all. I'm bullish. We've increased our sales and profits every year since our formation in 1970 and expect that trend to continue. I'm not scared of 1981 because I think the demand for programming people is still there.

It's a suppressed demand because financial problems have called a halt to many development projects. But people have still got projects on, they still want to develop online systems and do this and do that.

As soon as the New Year comes and things relax, the demand will still be there for good people.

FACILITIES MANAGEMENT BUSINESS SYSTEMS CONTRACT STAFF SUPPORT RECRUITMENT CONSULTANCY
SOFTWARE PACKAGES COMPUTER SECURITY FACILITIES MANAGEMENT
CONTRACT STAFF SUPPORT RECRUITMENT CONSULTANCY BUSINESS SYSTEMS SOFTWARE PACKAGES

HEXAGON Opportunities in 1981

PROJECT MANAGER/LEADER
Central London **to £12K + Perks**
- ★ Budgetary Responsibility for a Segment of Corporate Development.
- ★ Telecommunications, Message Switching, Word Processing, Personal Computing.
- ★ Experience of Major Systems Development as an Analyst or Project Leader.
- ★ Banking or financial experience useful, but not essential.

Ref: DJ 80201

CHIEF TECHNICAL PROGRAMMER
Watford **c. £11½K**
- ★ Good IBM background.
- ★ Probably will have CICS Experience.
- ★ To act as Internal Consultant to Project Teams
- ★ Multi-National Company.

Ref: DJ 80202

MVS SYSTEMS PROGRAMMER
NW10/Middx. Border **to £13K**
- ★ To Quickly Take Over Department.
- ★ Must have MVS Sys. Gen. Experience.
- ★ Preferably with CICS/NCP/VTAM experience.
- ★ Good Company + Benefits.

Ref: DJ 80203

COBOL PROGRAMMER **INTNL. BANK**
London **Totally Negotiable + Bank Perks**
- ★ COBOL Programmers, Circa 2 years' experience.
- ★ To work on Development of Banking Systems.
- ★ Hopefully CICS Experience, but not essential.

Ref: DJ 80204

COBOL PROGRAMMERS
Sevenoaks **to £7250**
- ★ To Train in CICS/DL1.
- ★ Circa 2 years' COBOL Experience.
- ★ Good Opportunity For Friendly Person.

Ref: DJ 80205

REAL-TIME SYSTEMS PROFESSIONALS
London **Pounds Unlimited**
- ★ To Develop Communications System and Operating Systems.
- ★ Technically Competent.
- ★ Preferably experience of PDPs or Micros.
- ★ Excellent Company, Perks and Prospects.

Ref: DJ 80206

DOS/VS SYSTEMS PROGRAMMER
London and Essex **Pounds Very Negotiable**
- ★ DOS/VS Systems Generation Experience.
- ★ Must have Assembler.
- ★ Preferably with CICS.

Ref: DJ 80207

SENIOR ANALYST/PROGRAMMER
Central Middlesex **to £10K**
- ★ Preferably COBOL, IBM DOS/VS Experience.
- ★ 2 years' Involvement in Analysis.
- ★ Mostly Analysis Work, leading to Project Management.

Ref: DJ 80208

HEXAGON computer services
145 W[illegible] STREET LONDON [illegible] 3TU
TEL 01-439 3671

THORBAR
A DIVISION OF INBUCON MANAGEMENT CONSULTANTS LIMITED
CENTRAL LONDON

Development of Advanced Technology for the 1980s

SOFTWARE DEVELOPERS — COMMUNICATIONS SYSTEMS

Circa £12,000 per annum

Our clients are an International Group engaged in developing technology within the communications and distributed area processing fields for locations in the United Kingdom and overseas.

The increasing demands being placed upon them have created the need to increase the number of technical personnel within their division. Telephone or write to us now if you can portray skills in some or all of the following areas:

- ★ Two years-plus Assembler programming experience working in a data communications environment
- ★ Experience in designing and implementing software for Mainframe and/or minicomputer hardware
- ★ Experience working with SNA implementations or emulations
- ★ Software and quality assurance

RING US NOW FOR 1981

INBUCON MANAGEMENT CONSULTANTS LIMITED
D. P. Appointments & Contract Personnel,
Greenock House, 19 Cuckfield Road, Hurstpierpoint,
Sussex BN6 9RP. Telephone: Hurstpierpoint (0273) 833848.

(3902)

INBUCON

EDG ENGINEERING INTERNATIONAL LTD

PRINCIPAL SYSTEMS ANALYST

FOR WORK ON CONTRACT APPOINTMENT BASED IN PARIS

EDG Engineering International Limited offers a contract to a suitably qualified Systems Analyst wishing to work in Paris.

Minimum essential experience will be:
1. 5 years' general computing with 2-3 years' experience in systems analysis and programming for Data General Computers.
2. 3 years' in Real-Time process control.
3. Experience of Pert evaluation and software quality assurance.

Preference will be given to applicants with experience in modern telecommunication systems and the offshore oil industry.

EDG Engineering International Limited is an established and important engineering design and management consultancy with global connections in the oil, gas and general process industries. Contract terms offered by the Company will be attractive and will reflect the seniority and responsibility attaching to proposed post.

Please apply by telephone or in writing to:

Steve Rhodes (Project Manager)
EDG ENGINEERING INTERNATIONAL LIMITED
42 Bond Street, Brighton, Sussex BN1 1RD
Telephone (0273) 21911

DATA PROCESSING STAFF

Saudi Arabia **Tax-free salary plus benefits**

The Saudi American Bank is a rapidly expanding organisation in Saudi Arabia; we maintain three data centres in the Kingdom, each with two Perkin-Elmer 3220 computers, with 1 MB of memory each and 356 MB disc drives for on-line storage. Out of each data centre an on-line real-time banking system is run with terminals in remote locations. Now we are looking for a number of experienced data-processing professionals to take two-year contracts, with possible extension to help continue our expansion.

Systems Analysts

You should have at least three years' experience in transaction processing systems for an on-line real-time environment.

Experience of data-base management systems and automation projects for banking applications would also be expected.

You would be based at our head office in Riyadh.

Data Centre Operations Manager

To manage our three data centres we require Managers with two or three years' experience in a similar position, preferably with Perkin-Elmer computers. You should also have experience of installing and using Datacom hardware.

For all positions we offer an attractive tax-free salary, free furnished housing and regular leave with paid air transportation for your whole family.

Please send a full CV and salary history to:
Head of Personnel Recruitment, Saudi American Bank, P.O. Box 833, Riyadh, Saudi Arabia.

SAUDI AMERICAN BANK

WE HAVE MOVED!

PLEASE NOTE NEW ADDRESS

CW Prize Crossword 11

■	1A	2B	U	3S	E	4D	■	5T	H	6R	O	7E	S	■
■	■	[illegible]	■	W	■	E	■	E	■	I	■	N	■	■
8F	O	O	L	I	S	H	■	9M	O	D	E	S	T	■
O	■	A	■	T	■	Y	■	P	■	I	■	U	■	10A
11R	E	D	U	C	E	D	T	O	■	12C	L	E	A	R
C	■	M	■	H	■	R	■	■	■	U	■	■	■	M
13E	B	O	N	■	14C	A	N	15D	E	L	A	16B	R	A
R	■	O	■	17A	■	T	■	O	■	E	■	E	■	G
18T	A	R	A	N	T	E	L	L	A	■	19O	G	E	E
A	■	■	■	C	■	■	■	I	■	20P	■	I	■	D
21I	N	22T	H	E	■	23L	A	N	D	O	F	N	O	D
N	■	R	■	S	■	I	■	G	■	T	■	N	■	O
■	24M	A	N	T	L	E	■	25O	R	A	T	I	O	N
■	■	C	■	O	■	G	■	U	■	T	■	N	■	■
■	26D	E	A	R	I	E	■	27T	R	O	U	G	H	■

WINNER of £10 in Computer Weekly's Prize Crossword no 11 is programmer Dave Morley who is with the North-Eastern Electricity Board in Newcastle-upon-Tyne. A £5 prize goes to George Ley, area civilian staff manager, London district (west) with the Army, and to P. Grace of Dewsbury, Yorkshire.

ROBOTICS PROGRAMMER

We need a bright Programmer/Engineer to join our team on research, development and maintenance of Robot Control Systems software. Should have some experience in Assembly Language programming of Microprocessors or Minicomputers. Would suit younger person willing to learn and develop with the company.

Commensurate salary. Contact Mrs Parker or Robin Ashdown, HALL AUTOMATION LIMITED, COLONIAL WAY, WATFORD, HERTS. TEL: WATFORD (0923) 35422.

A GEC Marconi Electronics Company.

(3778)

PROGRAMMER

c. £7000

with 2 years' experience of minicomputers, plus a knowledge of COBOL required by a rapidly expanding International Company with its own T1 990/6.

The successful applicant will be expected to take over and develop the existing software presently maintained by a U.S. Software House and will be asked to travel to the States to learn the package.

Send c.v. to Colin Evans
I.A.P.A.
P.O. Box 113, London, SW1A 2DT
or Ring 828 5841

IAPA

CALMA

INTERACTIVE GRAPHIC SYSTEMS

CALMA is an American-based computer company, specialising in producing computer systems for design applications. We are expanding rapidly and require the following staff:-

1) HARDWARE TECHNICAL SUPPORT ENGINEERS

Applicants should possess several years' experience as Computer Field Service Engineers. Experience with minicomputers or plotting equipment would be particularly relevant. The successful applicants are likely to be highly competent, technical people, capable of working from own initiative, and willing to travel extensively throughout Europe c £10,000 p.a + car

2) HARDWARE TRAINING INSTRUCTOR

Required to set up a training department from scratch. Successful applicant is likely to be already employed in this capacity, and have extensive computer experience. Applicants should also be good communicators, and be capable of planning training for a diverse range of products c £10,000

Conditions of employment will reflect the high grade of people being sought, and will be very competitive.

Please write in the first instance to:-

Calma Company, Neville House, 55 Eden Street
Kingston-upon-Thames, Surrey

(3883)

THE COMPANY

Turnkey Systems House specialising in MINI-COMPUTERS to first-time users. Rapidly becoming a Market Leader in this fast-growing market.

TOP SYSTEMS ANALYSTS/DESIGNERS

Write your own cheque
A good five-figure salary

With solid experience in Commercial Applications including Order Processing and Stock Control. To design Interactive Systems based on high powered Mini-Computers.

Requires fluency and authority when dealing with a wide range of first-time users.

Extensive Business Systems experience is essential. Therefore, you must have done the job before. Great possibility for a DPM yearning to return to a "Doing Job"

Contact: Jack Schumann, Director

TOP SALES EXECUTIVES

Write your own cheque

If you have a proven track record of successful selling to first-time users, come and talk to us. Ideally, you will be from a strong Commercial or Financial background.

Possibly, your present company or product is suffering from a depressed market, and you are looking to fulfill your potential.

Contact: David Blechner, Director

STAR COMPUTER GROUP
64 Great Eastern Street
LONDON EC2A 3QR
Tel: 01-739 7633

(3883)

CONTRACTS

LONDON

- ★ **FORTRAN PROGRAMMER:** PRIME experience an advantage. Project: to write a T.P. Monitor. 3-4 months. A.S.A.P.
- ★ **IBM COBOL PROGRAMMER:** RAMIS experience essential. Experience of ROSCOE, JCL, IMS, and MARK IV an advantage. 36-month contract A.S.A.P.
- ★ **RPG II PROGRAMMERS:** for IBM SYSTEM 3/C.C.P. experience required.

MIDDLESEX

- ★ **BUSINESS ANALYSTS:** To write user documentation.
- ★ **COBOL PROGRAMMERS:** J.S.P. experience required.

KENT

- ★ **COBOL PLAN PROGRAMMER:** For maintenance work on ICL 1900 under George II.

Please reply A.S.A.P. to:

ALLAN ALEXANDER 01-622 2445, office hours
or 01-696 7242

harris baldry consultants limited

D.O.E. Licence No. [illegible] 1815
101a Clapham High Street, London SW4 7TB

(3869)

UNIVERSITY OF SHEFFIELD

DATA PROCESSING OFFICER

(SCALE £11,165-£13,980 P.A.)

The post of Data Processing Officer will shortly be vacant following the resignation of Mr. Brian Woods. The successful candidate will lead a team of two analysts, three programmers and other staff engaged in maintaining and developing computer systems covering financial administration, staff and student records etc. for an organisation of nearly 10,000. A new Hewlett Packard 3,000 series 44 computer with full on-line facilities due for delivery in April, 1981. The vacancy is a senior one and calls for [illegible] and the ability to work effectively with all levels. Experience in the educational field is very desirable and knowledge of management information systems would be an advantage. The appointment will be made Grade 3 (£11,165-£13,980 p.a. under review) with appropriate conditions of service. A job specification is available from Mrs. Hammond. Telephone 0742-78555, Ext. 4022.

Applications including a full curriculum vitae should be sent to the Director of Services, The University of Sheffield, Western Bank, Sheffield S10 2TN. (3807)

Shift Leader

Phillips Petroleum is a major international company with extensive exploration and production commitments in the North Sea, Europe and Africa. To maintain our aggressive development programme we utilise the latest technology and techniques. Expansion has created a need for us to recruit an experienced Shift Leader to run a small team of operators working a 12 hour shift system, covering 365 days per annum. We operate two 6MB IBM 3031 machines under MVS JES 3 with VTAM, RJP, VSPC and TSO together with a large international TP network.

We expect candidates to have at least 5 years' experience in the above areas and be able to take full responsibility for the department whilst working outside the normal working hours.

Please write with full career details or phone for an interview to Pauline Seeley, Recruitment Analyst, Phillips Petroleum Europe-Africa, Portland House, Stag Place, London SW1E 5DA. Tel: 01-828 9766 Ext. 416, or call on our 24 hour answering service 01-828 2993.

Phillips Petroleum
The Performance Company

(3890)

PHILLIPS PETROLEUM 66

GUIDE TO RECRUITMENT CONSULTANTS IN THE U.K

LONDON & H. COUNTIES (LH). MIDLANDS (M). NORTH (N). SCOTLAND (S). OVERSEAS (O)

NORTHERN IRELAND

ALL COMPUTER STAFF NEEDS
ESCO Management Consultants Ltd
Professional, reliable, confidential.
Write to 77 Botanic Avenue, Belfast BT7 1JL, or phone Belfast (0232) 48088

Ivor Norton Management Services Ltd
Recruitment Consulting Division
82 Shaftesbury Avenue, London W1V 7DE
01-734 8862 (24 hour answering service)
P.O. Box 83, [illegible] House,
Harrogate HG1 1TS. Tel Harrogate 68628

FOR CLIENTS AND APPLICANTS IN UK AND OVERSEAS
CSA
Alex Daly
COMPUTER STAFF APPOINTMENTS
134 St. Vincent St., Glasgow
041-221 4166/9
Also in Edinburgh and Aberdeen

COMPUTER INDUSTRY SPECIALISTS
SALES • SYSTEMS • MARKETING • ENGINEERING • PROGRAMMING
INSIGHT MARKETING & PERSONNEL CONSULTANTS LTD.
AUSTIN HOUSE, CHARLOTTE STREET, MANCHESTER. TEL: 061-236 7025

Computer Professional Recruitment Consultancy
"COMPUTER PROFESSIONALS — MAKE SURE WE HAVE YOU IN MIND"
Head Office 0532 77 [illegible]
061-228 1354
Evening [illegible]

TEMPORARY AND PERMANENT COMPUTER PROFESSIONALS
John Goldsmith
North

FOR THE BEST PERMANENT AND CONTRACT JOBS IN THE NORTH OF ENGLAND

ALL COMPUTER STAFF NEEDS
ESCO MANAGEMENT CONSULTANTS LIMITED
77 Botanic Avenue
Belfast BT7 1JL
Tel: Belfast 48088
Professional, reliable, confidential.

D.P. Permanent & Temporary Recruitment
MANCHESTER
Maureen A. Ingle
Tel: 061-236 [illegible]
LEEDS
John Kilvington
Tel: 0532-448665
Minerva
Computer Personnel
A Division of Hoggett Bowers & Partners Ltd

FOR FURTHER DETAILS OF THIS WEEKLY FEATURE CONTACT OWEN KELLY 061-872 8861

IMMEDIATE CONTRACTS FOR PROGRAMMERS

IBM 370 DOS/VS PL/1 (Accounting Applications)	**Middle East**	**£20,000 + p.a.** + accommodation & all expenses
IBM 370 DOS/VS Assembler — BTAM	**Middle East**	**£20,000 + p.a.** + accommodation & all expenses
AES Multi plus Basic	**Croydon**	**Neg.**
IBM SYSTEM 34 RPG II	**London/Croydon**	**Neg.**
IBM 370 DOS/VS Analysts (Banking Applications)	**London**	**Neg.**
IBM 370 DOS/VS PL/1 — CICS — Structural Programming	**London**	**Neg.**

These are just a few of our current vacancies

For further details contact Nic Poland

TYLIN PEOPLE
A division of Tylin Management Systems Limited
Leon House, High Street, Croydon, CR9 3NH
01-680 2323

A member of the TATE & LYLE GROUP

(3386)

Members of Computing Services Association

A newly established international communications organisation — an interesting position as Head of Computer Unit.

INMARSAT

DATA PROCESSING MANAGER

LONDON **£10,270-£16,750 NET OF TAX**

INTERNATIONAL MARITIME SATELLITE ORGANISATION

This vacancy calls for applications from experienced data processing managers, aged 30-45, with a minimum of 8 years' computer user applications experience, and not less than 3 years heading the data processing operation — preferably with a degree in a related discipline. The successful candidate, reporting to the Director of the technical and operations division will be responsible for overseeing initially the installation of Inmarsat's computer facility and thereafter managing the data processing section. The ability to identify the information requirements of the organisation and to manage a small team to ensure an efficient data processing unit is important. Initial salary range £10,270-£16,750 net of tax, pension scheme, life assurance and health insurance schemes. Applications in strict confidence under reference CW23.

DATA PROCESSING STAFF

LONDON **£8,700-£14,000 NET OF TAX**

Two further positions exist for data processing staff. Applicants must have at least 5 years' experience of analysing data base requirements and developing appropriate data bases using standard mini computer software. Applications in strict confidence quoting reference CW231/2 to: **The Director General, Inmarsat, Market Towers, 1 Nine Elms Lane, London SW8 5NQ.**

(3882)

SYSTEMS PROGRAMMING MANAGER

Cambridge £12,000+

Applicants should have about 5-7 years experience in a technical IBM environment with good supervisory skills to lead a team. The company uses an IBM 3031 + DEC 20 computers. Experience of MVS, JES and TSO essential.

SYSTEMS PROGRAMMERS

Croydon To £10,600

The company has a medium sized installation using IBM hardware under VM/370 and DOS/VSE with CICS/VS and DL/1. If you have at least 2 years relevant experience for this Croydon job or any other preferred location we would like to hear from you.

SYSTEMS ANALYSTS

£7,000-£8,000

Various companies are seeking Systems Analysts with 18 months to 3 years systems analysis experience.

Locations: BRIGHTON, STANMORE, CAMBERLEY, BRENTFORD, WATERLOO, REDHILL, CROYDON, TUNBRIDGE WELLS, KINGSTON, SLOUGH, ALPERTON, SOUTHALL, WEST END, BECKENHAM and BOREHAMWOOD.

PROGRAMMERS

£ Various

Junior and Senior Programmers are also required in various areas

Please phone for an Application Form or write, giving FULL details

AMES PERSONNEL

Employment Agency Suite 14 Dryden Chambers,
119 Oxford Street, London W1R 1PA Tel 01-434 1106

(3783)

MERCHANT BANK SUBSIDIARY IN LEYTON

NEW ON-LINE ICL ME.29

Unique opportunity for Computer Person with 2-3 years' ICL experience to run own small Computer Department. Ideal opportunity. Must be able to handle all aspects of day-to-day computer processing including operating, programming and systems work.

Career opportunities in other areas of banking work.

Competitive remuneration package.

Apply in writing to Managing Director,

Close Brothers Limited
36 Great St. Helen's
London EC3A 6AP

(3892)

Lothian Regional Council

NAPIER COLLEGE OF COMMERCE AND TECHNOLOGY

SENIOR LECTURER in COMPUTER SYSTEMS DESIGN

Salary on Scale: £10425-£11601 (Bar) — £13170

required in the Department of Computer Studies to be responsible for academic leadership in systems design of commercial or administrative data base and real time systems for courses including Higher Diplomas and the BSc Computing and Data Processing.

Considerable experience in lecturing, together with commercial/industrial experience as a systems analyst, or systems designer, in a team implementing computer based systems is essential, as is the ability to lead research and consultancy work in relevant fields.

Applicants must have adequate experience at a senior level, either in course organisation, especially for CNAA or University degrees, or in leadership of a project design team. Applicants must possess an honours degree or equivalent professional qualification and a higher degree would be an advantage.

LECTURERS A in COMPUTER STUDIES

Salary on Scale: £5916-£10440 (Bar) — £11217

required in the Department of Computer Studies to teach on a wide range of courses including CNAA degrees, Higher Diplomas and professional courses, in the following subject areas:

(a) **Data Processing Systems Design**
Applicants should have experience in commerce or industry as analyst or designer in a team implementing computer based systems.

(b) **Computing for Science and Engineering**
Applicants should have either a computer science qualification or a background in mathematics, science or engineering plus relevant experience of computing systems and programming.

Encouragement will be given for staff to develop interests in particular areas of computing especially through research and consultancy.

Applicants for these posts should possess an honours degree or equivalent professional qualification. Membership of the British Computer Society, together with good basic qualifications, may also be acceptable.

Application forms and further particulars from:
The Administrative Officer (Personnel)
Napier College of Commerce and Technology
Colinton Road, Edinburgh
EH10 5DT

(3810)

THE SALES BIT

Repayment of commission guarantees

WHEN a salesman moves from one employer to another he usually negotiates a non-returnable minimum guarantee in respect of part of his expected commission earnings. This is designed to give him sufficient secure income for an initial period.

Certainly, any successful salesman living up to his present income level would find an income limited to the typical basic salary of 50% of total "on-target" earnings, totally inadequate.

Hoppers

The other day I was told about a computer supplier which has decided to change its income policy for sales recruits so that all advances against commission earnings are repayable. Basically their decision is due to the frustration of consistently being exploited by "guarantee-hoppers". (A Sales Bit expression describing fundamentally inadequate yet plausible salespeople who move from job to job as each minimum income guarantee expires, usually having achieved no sales success in the process.)

I can appreciate the emotional motivation behind such a decision. I can understand the frustration of investing good money and getting no return. I can sympathise with the anger that comes from acting in good faith, only to be cheated. I can relate to the bitterness of falling short of sales objectives, despite the success of many, due to the lethargy and ineptitude of a few. Yet I cannot agree with a draconian measure that presents itself more as a reflex action than a considered policy and one which is geared to punish the "bad guys" rather than motivate the good ones who inevitably comprise the majority.

Sterile

The computer industry is far from holding a monopoly on drones and incompetents. Such people are a fundamental aspect of society and have to be taken into account, rather than becoming the basis on which business and social mechanism is constructed.

One sees this type of situation in many aspects of business and government. It is so much easier to create legislation than come to terms with individual situations. Yet broad-based edicts generally have the effect of creating a sterile environment devoid of flexibility and original thinking. "Company policy" can soon become a convenient excuse which allows the inadequate manager to escape the responsibilities of the decision-making process; a comfortable device to hide behind.

This kind of approach to solving the problem of delinquent sales recruits is really a vote of no confidence in field sales management.

There are a number of processes that new recruits have to go through before they can be expected to get to the stage of actually earning commission – training, prospecting, completing the selling cycle, awaiting delivery of the complete product, and perhaps even persuading the client to pay.

Risky

More often than not this is a period well in excess of the typical commission "guarantee" period which many new salesmen survive only by virtue of inherited clients and prospects and the occasional "Bluebird".

Certainly the hiring of new salesmen is always a risky business for any company, but it should be borne in mind that it is only the salesman who takes a 100% risk.

TRADER

Puzzle Answer

TO produce the nine-digit recurring decimal, the divisor must contain a factor of 999,999,999 = 81 × 37 × 333,667, and also the factor 2 or 5 (to account for the single non-recurring digit). We know that the divisor has six figures, so the only possibility is 2 × 333,667 = 667,334.

Next significant step is to consider the third and sixth remainders, which must be at least 1,000,000 (with the nought brought down) and no greater than 1,334,660 (less than 2 × 667,334 — 1 and finishing with a nought). This means that the second digit in this remainder can only be 1, 2 or 3.

Moving on to the eighth remainder, we find it must consist of xy0,000. Subtracting the known six-figure divisor 667,334 from this gives 1x2,666 as the ninth remainder. So xy must be 77, 78, 79 or 80.

Further calculation shows 78 to be the only valid answer, and x is accordingly 1. Armed thus with the identity of the third and ninth remainders, the rest is fairly easy. The complete sum is 7,752,341 divided by 667,334 equals 11.6168830001.

COURSES

THREE short courses for technical and non-technical personnel are being held by Control Data in London. Information Systems Planning is for DP professionals and business managers wishing to synchronise business plans with DP plans, and for people responsible for improving data processing technology in their organisation. It will be held at Berners Hotel from January 26-27, and the fee is £310 + VAT. Database in a Distributed Processing Environment takes places from January 28-30, also at Berners Hotel, and the fee is £415 + VAT. Computer Appreciation aims to take some of the mystique out of the computer department. It will be held at Westmoreland Hotel from January 12-14, and the fee is £760 + VAT. Further information from: Educational Services Division, Control Data, 179-199 Shaftesbury Avenue, London WC2H 8AR. Tel: 01-240 3400 ext 3278.

A SERIES of workshops entitled The Mini in the Manufacturing Industry, will be held by Computer Systems Development (CSD), in London on January 18 and 29, February 12 and 26, and on into June. Those interested should contact David Braybrooke, CDS, 75 Marylebone High Street, London, W1M 3AR. Tel: 01-935 2255.

A FIVE-DAY workshop designed to provide practical training in the techniques and methods of structured programming will be held from January 19-23 at the Coburg Hotel in London. Organised by BIS Applied Systems, the course is intended for experienced programmers, designers, [illegible] leaders and programming managers. It is expected that those attending have at least six months' programming experience. The fee is £425 + VAT. Details from Jackie Preuss on 01-261 9237.

Computer Staff

Where are you going in 1981?

Our Client who specialises in large mainframe service bureau activities has asked BLACKWOOD ASSOCIATES to assist them in the recruitment of experienced men and women who are seeking and possess the ability to take up challenging roles within their organisation early in the New Year. Vacancies existing mainly in the Greater Midlands are for the following personnel:-

Operations, Software, Telecommunications Managers

Operating dual IBM 3033's providing a full range of Online and Batch facilities based on an extensive BSC, ASYNCH and SDLC teleprocessing network.

Systems Programmers

Required to both support existing facilities (e.g. MVS/SE RL2, JES2, TSO, IMS, TCAM, VTAM, NCP) and to help develop and implement new facilities including 3033 Systems Extensions, MVS/SP Products and IMS extended facilities.

Project Leaders, Analysts and Programmers

Experienced professionals to sustain the rate of application development required by user companies. Practical experience in the development and control of IMS DB/DC systems using either COBOL, PL/1 or Assembler would be considered an advantage but should not be regarded by experienced people as a mandatory necessity.

Strategic Planners

The rate of technological change both apparent now and in the foreseeable future necessitates the provision of additional senior technically and business orientated personnel to assist in planning for a future comprising Distributed Data Processing, Electronic Office Systems and Plant Automation.

If you consider that your experience and ability qualifies you to fulfil one of these positions then our Client's senior staff will be available to discuss details directly with you at our offices on:-

Thursday 8th January and Friday 9th January, 1981, between 4.30 and 7.30.

Call in for an informal discussion with our Client or telephone Roger Carr for an application form.

Blackwood Associates
Recruitment Consultants
26 Waterloo Street, Birmingham B2 5TJ.
Tel: 021-233 2921 (24 hr. service).
A Member of the CPS Group of Companies. (3888)

OUTSTANDING BUSINESS OPPORTUNITIES IN MINI COMPUTERS

We are a California-based Electronics Company

We are looking for a small number of distributors or self-employed representatives to take up franchises to sell our advanced memory systems products

You will need to show substantial in-depth expertise in and knowledge of the minicomputer peripherals add on market

Apply initially in detail, in the strictest confidence and stipulating any companies to whom you do not wish your submission to be forwarded, to Philip Smith, Philip Smith Manpower Consultant, 85-87 Jermyn Street, London. SW1Y 6JO

(3811)

THE UNIVERITY OF MANCHESTER

CHAIRS IN COMPUTER SCIENCE

Applications are invited for two Chairs in the Department of Computer Science

The other chairs in the Department are held by Professor D. B. G. Edwards (ICL Chair of Computer Engineering), Professor F. H. Sumner (Barclay Chair in Microprocessor Applications in Industry) and Professor D. Morris (Chair of Computer Programming)

Consideration will be given to candidates with an industrial or academic background but they must be active currently in research in any field of Computer Science.

Some possible fields of interest follow but the list is not intended to be exclusive or to imply any order of priority

Artificial Intelligence, Commercial Data Processing, Computer Aided Design, Computer Architecture, Computer Networks, Robots, Theoretical Computer Science

Applications (2 copies, 1 suitable for photocopying), giving full details of qualifications, experience, research etc., and the names and addresses of three persons to whom reference may be made, should be sent by January 14th, 1981, to The Registrar, The University, Manchester M13 9PL from whom further particulars may be obtained. Quote Ref. 243/80/CW

(3837)

TENDERS

WEST SUSSEX COUNTY COUNCIL

SUPPLY OF DATA PREPARATION EQUIPMENT

Notice is hereby given that the West Sussex County Council wish to receive Tenders for the supply of Data Preparation Equipment.

Their appropriate Tender Forms, together with copies of Conditions of Contract and a specification may be obtained on application to Head of Computing Services, County Treasurer's Department, County Hall, Chichester, West Sussex

The County Council do not bind themselves to accept the lowest or any Tender received.

All Tenders should be submitted on the above-mentioned Tender Forms and should be delivered to the County Secretary of the West Sussex County Council at County Hall, Chichester, West Sussex, in a plain sealed envelope or package on or before 12 noon on 29th January, 1981. Nothing should appear on the outside of the envelope which would indicate the name of the sender.

(3880)

BOX Nos.

Box number replies should be addressed to

Box No. ....
c/o Computer Weekly
Dorset House
Stamford Street
London SE1 9LU

IBM SYSTEM 34

RPG II **CROYDON**

TEAM LEADER/ SENIOR ANALYST/ PROGRAMMER

£8,500-£10,500

ANALYST PROGRAMMER

£7,500-£9,500

Tylin Management Systems a leading IBM Computer Bureau and Software House and subsidiary of the Tate and Lyle Group requires additional programming staff for the implementation of a network comprising 8 System 34s linked to an IBM mainframe.

The Team Leader/Senior Analyst Programmer will
- — manage a development team.
- — design systems and produce specifications.
- — visit users on site to discuss requirements, specifications, installation, user training, implementation etc.

The Analyst Programmer will
- — assist in Systems Design
- — produce program specification and write programs in RPGII
- — already have between 2½ to 5 years' experience on System 34.

Benefits include 4/5 weeks' holiday, free meals, paid overtime, non-contributory pension scheme and free life assurance.

For further details please contact.

NIC POLAND
TYLIN PEOPLE
A division of Tylin Management Systems Limited
Leon House, High Street, Croydon, CR9 3NH
01-680 2323

TYLIN

A member of the TATE & LYLE GROUP (3800)

Members of Computing Services Association

SOFTWARE ENGINEER

The successful applicant would be required to work on design and development of advanced Real-Time machine tool CNC systems.

He/She would be immediately responsible to a software leader working in a small design/development team, should have specific experience of any or all of the following (particularly if applied to machine tool control):

Software: RTL/2 MACRO-11 RSX-11M

Hardware: DECLSI-11 DECPDP-11/34 TEXAS 9900 MP

or any of the following attributes:

Experience in: design and production of 'Multi-tasked' 'real-time' software for time critical control applications. The testing and de-bugging of such software in a 'live' (real-time) environment, distributed processing (with Micros).

A knowledge of: one or preferably more assembly languages, one or more 'real-time' high level languages (e.g., RTL/2, CORAL etc.), the ability to think at 'whole' system level, computer H/W mechanisms e.g. Interrupts, DMA, I/O etc. at an architectural level, plus an appreciation of the various 'state of the art' micros.

He/She will be expected to liaise with the H/W design team and, in time, to assist and instruct the more junior members of the S/W team.

We offer competitive salaries, attractive conditions of employment and benefits associated with a large progressive company.

Applications, from men or women, giving brief details of age, experience and qualifications to:

David Whyte, GEC Industrial Controls Limited, Mill Road, Rugby, Warwickshire. Telephone: (0788) 2121 Ext. 716. (3681)

GEC Industrial Controls Limited

GEC

Computer Communications

Travicom 2

The Travicom System is the world's foremost multiple access airline reservations, ticketing and accounting system. Some 500 United Kingdom travel agents already have direct visual display connection to the seat-booking processors of 20 leading international airlines for these purposes.

The Travicom 2 System now being developed at Maidenhead will retain the world lead by increasing several-fold the power available for message switching and translation. It will operate with Packet Switched Services or with Dedicated Data Networks and will extend the range of services to include package tour, hotel, car rental, sea ferry and rail booking, ticketing and accounting.

KLM have chosen the Travicom 2 System for use throughout Holland. Other airlines and telecommunications authorities are about to do so for their countries.

If you are an experienced programmer or software engineer familiar with any of the following

- ★ DEC or Zilog hardware
- ★ Coral, Assembler or Micro-Cobol languages
- ★ RSX-11 operating systems
- ★ Data Communications, Accounting or Commercial systems

and are interested in joining an expanding and exciting project with opportunities to travel and work abroad please contact us for more information.

Computer Communications

Telephone Personnel Department, Maidenhead (0628) 71511 Ext 42, or write to Computer Communications Limited, Fleming House, King Street, Maidenhead, Berkshire SL6 1DU

(3777)

MYRIAD

INTERNATIONAL DATA NETWORKS COMMUNICATIONS ENGINEERS

£7,000-£10,000
READING BASE

Due to the increasing importance and continuing growth of the data communications industry we are seeking additional engineers to join the Product Engineering Group of the industry's market leader. The company is experiencing ever-increasing demand for its sophisticated range of data communications products and is therefore expanding its engineering and support groups to cope with significantly increased workload.

The Product Engineering Group provides a high-level technical support service to users throughout Europe. This includes the provision of a consultancy service on network design and application, system specification and costing, monitoring new development in the market and training users.

The general requirement is for candidates who are educated to degree level in either Electronics, Physics or Computer Science with post-graduate experience in either data-communications technology, digital electronics or micro-processor application.

Dealing with prospects and users throughout Europe a degree of international travel will be involved and the ability to work without immediate supervision is therefore important. The company can offer extremely bright prospects for future career development coupled to a high commencing salary and valuable conditions of employment including comprehensive relocation assistance. Telephone to discuss these opportunities in detail or alternatively write to us quoting reference SW1/0412/CW.

MYRIAD APPOINTMENTS LIMITED
30 Fleet Street London EC4Y 1AA Telephone 01-353 0981 24 hours

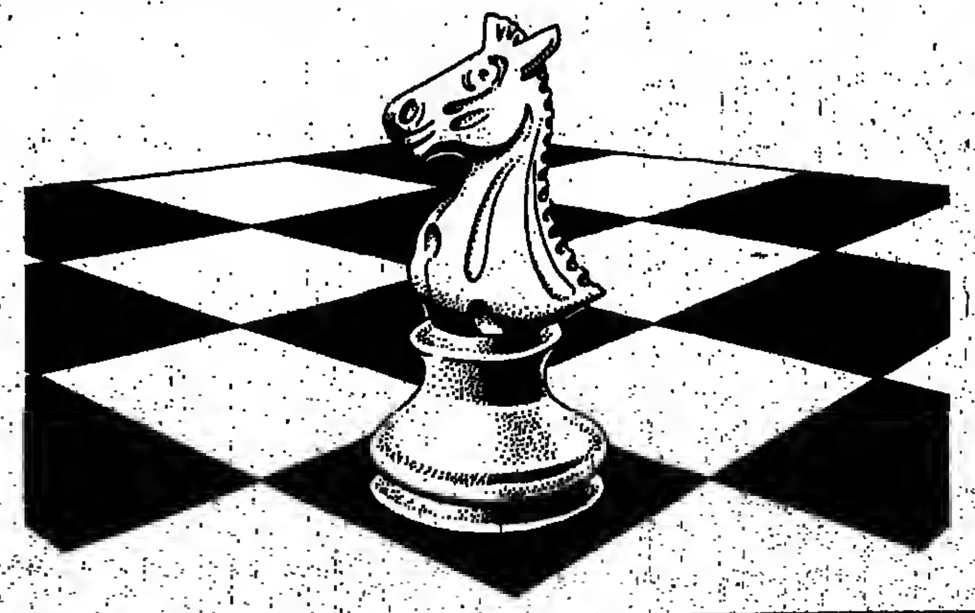
(3805)

PROGRAMMERS

MAKE YOUR NEXT CAREER MOVE TO

SYSTEMS DESIGN

Salaries to £9,500 p.a. Essex



Our client is looking for **experienced programmers** who would relish the opportunity to take responsibility for technical system design, and who will also be able to provide the technical leadership for the programmers on a project team.

You will be working for one of the largest and most secure international companies in their sector throughout the world. They are also highly progressive and are in the forefront of office automation. The data processing organisation has a history of expansion and offers excellent prospects of further career development.

They use twin IBM 3032 processors and have a network of 300 terminals including distributed processing supported by IBM 3730's and 8100's.

But whatever your equipment or language background, our client's major commitment to training will ensure that you will be brought right up to date on IBM equipment, and stay there.

The company will pay you an excellent starting salary of up to £9,500 p.a. together with other benefits. If you need to move house, there is a choice of attractive and affordable properties within easy reach and relocation assistance will be provided.

Call us now to find out more about these fine opportunities or send your C.V. to Sue Blundell at the address below.

CASTLE RECRUITMENT

271 High Street
Berkhamsted, Herts.
Phone: (04427) 74941

Permanent and Contract Staff

COMPANY NEWS

ICL's results caused shock waves in the City. KEVIN CAHILL explains why they were mis-read.

ICL blamed for City 'overreaction'

THE most depressing aspect of ICL's results was the City's reaction. One shareholder ditched half a million shares on the day the results were announced. The subsequent fall in the share price from 108p before the results to 70p afterwards reduced the market valuation by ICL by over 30%.

This reaction, or "overreaction" as some industry commentators see it, has been laid squarely at the door of ICL by some City analysts.

Shock

Graham Meek of stockbrokers Wood Mackenzie, a leading ICL watcher in the City, described the figures as "poor" and the explanations as "inconclusive."

He was kind. Other City sources expressed outright shock at the results, and annoyance at the fact that the warnings given by ICL in November had not been clear enough to indicate the extent of the trouble.

How much further ICL could have gone by way of disclosure without breaking the rules is hard to know, but what is certain is that the City understands ICL less well than it should.

At least some of the blame for this must attach to ICL. For instance, not much is known about the balance inside the company between software and hardware. The whole emphasis of chairman Philip Chappell's presentation was on the hardware side of the business, with only a passing mention for software and services.

Yet managing director Chris Wilson, when he spoke at the BCS earlier in the year, revealed that manufacturing accounted for less than one-third of the company's resources.

This approach to the balance of the company's business has left the City with only the hardware data and the figures to respond to. This must be accounted unsatisfactory given that service revenue, including software turnover, has risen from £270 million to £300 million.

And the news on the hardware side, on the surface (which is how ICL gave it) was not good. Sales to ICL's own leasing subsidiaries went up 100% from £86 million last year to £150 million this year.

In the long run this should mean more money for ICL, provided the leases are on a sufficiently long period and the repurchase component is low. ICL says that most are for four or five years with minimal repurchase obligations. But short-term profit figures will be affected.

ICL did not give a breakdown of the hardware sales but a spokesman later emphasised that the "postponement" of orders was occurring at the lower and upper ends of the range. Only the ME29 was ahead of target by about 20%, with orders outstanding worth about £70 million.

The end of the range most likely to have borne the brunt of the hardware sales slowdown is the large 2960 and above.

The effect will be significant.

The upper end of the 2900 range is expensive to build, expensive to warehouse and very expensive to support. Each unit could be tying up as much as £2 million in working capital, at an effective interest rate of about 16%.

ICL has never sold much of the 2900 series in America where its sales were nearly halved last year, but in places like Australia and Germany it has sold big machines and it is in these two countries that ICL is encountering Fujitsu head-on, and by all accounts suffering.

This must raise the question of whether ICL should continue with its large mainframes at all.

A spokesman at ICL agreed that the trend in sales before the recession struck was "towards the lower end of the range." However painful the surgery at Winsford and Dukinfield may have been, therefore, more may have to follow if ICL is not to discover, as it comes out of the recession, that it still does not recover sales at the top end as a result of Japanese competition.

In terms of sales ICL had a boom year in what it describes as Africa, which in practice means South Africa, for an estimated 80% of this business. Here again, ICL may be caught out if the widely expected trade embargo is imposed next year.

Fears

The huge loss sustained by the Lloyd's insurance market has made the City sensitive to figures relating to repurchases from leases, and the fact that ICL increased its provision for repurchase from £7.8 million last year, to £19.1 million this year, caused concern.

This is more than the doubling of sales to the leasing companies would normally account for, but is still in accordance with the caution ICL has exercised in this area over the years, according to a spokesman.

ICL chairman Philip Chappell . . . only a passing mention for software and services.

One City analyst expressed concern that ICL might be filling warehouses with repurchased machines and might have to face the kind of write-off announced by Burroughs last week.

ICL told Computer Weekly that its provision for repurchase was conservative and that ICL's experience this year was normal. In practice, most of the machines coming back to ICL were outright purchases originally and are being taken back at discounts on new equipment, that are decidedly low.

Pricing on the ME29 has been particularly aggressive, with the majority of purchasers offered no discount on the return of equipment. Leeds University has been offered little more than £4,000 for a working 1906.

If the value of its shares means anything to ICL, it should concentrate in the immediate future on explaining itself to the City, rather than selling itself.

With over £300 million worth of revenue coming from services and software and a runaway success with the ME29, ICL has the basic ingredients for expansion and success when the recession lifts.

In the meantime it is doing much better than its cousin in France, CII-Honeywell Bull.

Looked at from inside the industry, the principal question must be how the company will meet the developing threat in Germany and elsewhere, from the Japanese mainframes.

As one of ICL's customers put it, "Is there going to be such a thing as a mainframe in two years' time?"

Year to September 30	1979 £M	1980 £M	% Change
Turnover	624.1	715.8	+ 15
Trading Profits	111.8	110.4	− 1
Depreciation	40.1	39.9	− 1
Repurchase Provision	7.8	19.1	+145
Interest (net)	17.2	26.3	+ 53
Pre-Tax Profits	46.5	25.1	− 46
Taxation SSAP 15)	11.2	7.4	− 34
Minorities	0.2	−	−
Attributable	35.1	17.7	− 50
Earnings per Share (SSAP 15)	26.3p	13.3p	− 49
Earnings per Share (fully taxed)	17.5p	9.0p	− 49

by courtesy of Wood, Mackenzie & Co.

Figure 1. ICL's Preliminary results to September, 1980.

DG results are below company's expectations

HIT by inflation and increased expenses in the US caused by over-ambitious expansion plans, Data General has reported disappointing results for its 1980 financial year ended September 27. But the company has continued to do very well in Europe, where revenues jumped 55% to $166 million.

Unfortunately, most of DG's business still comes from the US, which is why the company reported a fiscal 1980 net profit which was only 10% up on the previous year. The net profit figures of $55 million and the fiscal 1980 turnover of $654 million, 29% up on 1979, have both been described by Data General president Ed de Castro as "below our expectations."

Castro said that these "economic uncertainties" would continue to affect the delivery of DG products adversely during the first half of the 1981 fiscal year. But he added: "We continue to control costs, carefully assess employment needs and tightly manage assets. We look forward to continued growth in earnings and revenues for fiscal 1981 as a whole."

In October, before the DG results were published, de Castro said that he expected fourth quarter operating margins to fall short of the 17.2% achieved in the third quarter (CW, October 23). The margin figure now published is 15.7%.

The number of CPUs shipped per week in the fourth quarter fell to 356 compared with 417 in the third.

Providing 27% of total sales, the UK is still DG's biggest market in Europe but the fastest growth in fiscal 1980 was in Italy.

FormScan turnover

FORMSCAN, the Somerset-based supplier of the Alphaword OCR reader, has announced a turnover of more than £1,000,000. The company, which recently opened offices in Holland and Germany, expects growth at the present rate to be maintained.

£1m for CTL offshoot?

PROFITS of just under £1 million on a turnover just under £10 million are predicted for the current financial year by the chairman of Information Technology Ltd, Michael Richardson.

ITL is the holding company, set up in June, for Computer Technology Ltd, the Hemel Hempstead-based mini manufacturer, and Office Technology, a new operation set up to develop products for the office market.

Richardson says that bottom line results on March 31, 1981 will show only a marginal improvement on the £580,000 profits reported last year, but this will be after the retention of some £400,000 for product development within OTL. This is likely to be in the word processor/data processing area.

ITL is a private company owned 40% by the Industrial and Commercial Finance Corp, ICFC.

'Concrete' services move

IN a somewhat unusual move Blue Circle Industries, the £500 million a year cement giant, has taken a 26% stake in the comparatively small computer services group G. B. Jackson Associates.

Jackson's, based in Chichester, provides a range of sales and accounting packages designed around the Honeywell Level 6 minicomputer.

According to information manager Andrew Bond, Blue Circle became interested in Jackson's following the successful implementation of a general ledger package.

"The package was in and working three months after Jackson's was selected to do the job. This was considered exceptional performance, and as well as the Blue Circle equity participation, Jackson's is now doing additional work in payroll despatch and stores work."

Jackson's has been in operation since 1973 and provides commodity brokers in the City of London with in-house and online bureau services.

Last year (1979) Jackson Associates reported turnover of £1.45 million and profits of £110,000. Turnover this year is expected to exceed £3 million, according to managing director Barry Jackson.

Turnover static for NCR UK

LITTLE if any growth in turnover is expected from NCR's UK company for the year just ended, despite a good return in the terminal and non-computer banking sector.

Board director Sean Dixon-Child says there will be "no significant difference" in turnover for the year ended November 30, 1980 compared with the previous year.

The turnover last year was £82.4 million giving a profit of £9.1 million, UK turnover including hardware sales, various support, engineering and other services, the Dundee factory and a small contribution from Commonwealth countries like Cyprus, Tanzania and Kenya.

The expected lack of growth this year is put down by one City analyst to falling cost of hardware and is not unexpected. NCR in Britain is primarily a hardware company, with only an arm's length relationship to allied software sales through other companies.

Five a week

This year's expected setback comes at the end of a period in which the company's sales of cash dispensers, cheque encoders, sorters and the like to the banking sector have held up well, according to Dixon-Child.

NCR supplies cash dispensers to the Midland, National Westminster and Barclays Banks (Lloyds, the other big clearing bank, being supplied by IBM).

NatWest is aiming to install NCR dispensers at the rate of about five a week in 1981.

Dixon-Child says NCR aimed to sell 5,000 dispensers by 1985 but that it had already sold 1,000. There are currently about 7,000 branches of the four big banks, so NCR is aiming for the major part of this market.

It also anticipates similar business in the building society sector and is developing a dispenser which will take the pass book issued to society savers.

The societies view the pass book as essential both to attract and retain savers.

Fascia success

SALES of the RTZ Fascia financial software package have passed the £1,000,000 mark. The package is designed to maintain a company's fixed assets on the new current cost accounting basis. It is sold outright, and now has over 160 users.

CW SHARES TABLE

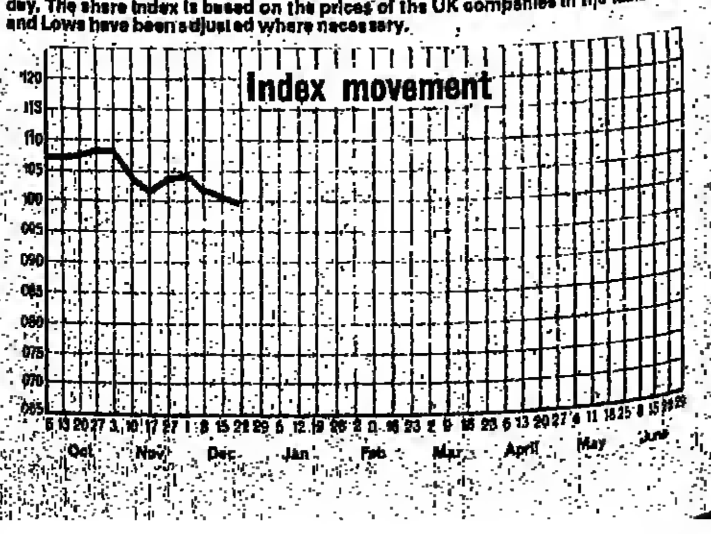
Date: 12/12/80 Index: 97.34 Change: −2.48
Date: 19/12/80 Index: 97.26 Change: 0.08

Pence 1980 High	Pence 1980 Low	London Stock Exchange Stock	Pence Price	Pence Chge
172	73	A Comp Tech (25p)	143	−15
98	56	BOC Intl (25p)	98	+ 6
43	12	B Bov Kem (25p)	22	−1½
120	70	Chubb (20p)	76	+ 5
100	44	Cole (R.H.) (25p)	56	− 3
870	640	De La Rue (25p)	790	+33
184	148	Exel (25p)	184	+ 8
480	234	Ferranti (50p)	473	− 2
606	336	GEC (25p)	563	− 3
181	74	ICL (25p)	74	−34
86	64	Kalamazoo (10p)	81	− 5
345	203	Kode Int (25p)	275	− 2
270	82	Muirhead (25p)	88	+ 4
357	231	Office & Elect (25p)	334	−
470	297	Philips Lamp (Fl 10)	297	−
275	106	Plessey (50p)	270	− 5
197	78½	Quest Auto (10p)	148	−21
368	100	Racal Elect (25p)	330	−27
110	65	Rediffusion (25p)	110	+ 8
374	267	Thorn-EMI (25p)	310	−15

$ 1980 High	$ 1980 Low	US Stocks Stock	$ Price	$ Chge
36⅝	15⅛	Amdahl	32¼	− 2¼
35½	17¾	Ampex	32	− 1⅝
51	30¼	Auto Data Pro	45½	− 2⅞
64	48¼	Burroughs	50⅞	+ ¼
27¼	11½	Comp Automation	21¼	− 3
29½	15⅝	Comp Sciences	18¾	+ ⅝

$ 1980 High	$ 1980 Low	US Stocks Stock	$ Price	$ Chge
31½	11¼	Comshare	19⅝	− ¼
78½	46	Control Data	71	+ 1¼
66¾	53⅛	Data General	58⅛	[illegible]
115⅝	44⅛	Datapoint	108	− ½
38	10⅛	Dataproducts	32⅝	[illegible]
98⅝	69½	Digital Equipment	88⅝	[illegible]
37⅛	18¾	Elec Data Sys	30½	[illegible]
10¼	6¼	Gen Automation	8	− ¼
65¼	29¾	Harris	61⅛	−1⅞
96⅝	63¾	Hewlett Packard	90⅛	− 1⅝
108¼	66¼	Honeywell	105¾	[illegible]
49	27⅝	Intel	40¼	[illegible]
72⅛	53⅛	IBM	63¼	[illegible]
79⅝	10⅛	MDS (Mohawk Data)	24¼	[illegible]
24½	8⅛	Mngmnt Assist	14⅛	[illegible]
18¼	11½	Memorex	12⅛	[illegible]
31¼	23	Modular Comp	23	[illegible]
83½	42¼	Motorola	70	[illegible]
50	17¼	National Semi	40⅛	[illegible]
78⅛	58¼	NCR	65⅝	[illegible]
69½	37	Perkin-Elmer	64	[illegible]
67⅝	14½	Prime	51	[illegible]
110⅝	60¼	Raytheon	107⅛	[illegible]
60⅝	41⅛	Sperry Corp	67⅛	[illegible]
25¾	11¼	Storage Tech	[illegible]	[illegible]
101¼	28⅞	Tandy	[illegible]	[illegible]
149	58⅜	Texas Instruments	120½	[illegible]
87⅝	37⅛	Tymshare	[illegible]	[illegible]
44	9⅛	Wang Lab B	[illegible]	[illegible]
19⅝	5¾	Wyly	14⅛	[illegible]

The table shows the closing prices in London on Friday and in America on Wednesday. The share index is based on the prices of the UK companies in the table. Highs and Lows have been adjusted where necessary.



Determination of entity sub-types

DATA ANALYSIS

Section I — Part 12

of our series describing a system design methodology

by Rosemary Rock-Evans

ONE of the difficulties encountered in entity analysis is that of knowing at what level to pitch the fixing of an entity type.

An entity type was defined as being "all the entities relevant to the enterprise which fit a given description." When deciding on the entity type, it is often difficult to decide which groupings of entities to consider.

A person for example might be classified as one of the entities within an entity type "Person," "Doctor" or "Surgeon."

The total population of entities can always be split into identifiable subsets. In the first stages of entity analysis, this task is performed intuitively by knowing what the enterprise regards as important and how it classifies the total population.

In many cases, however, this classification is not made clear by the enterprise, different users will view the entities in different ways, and guidelines are required.

Entity sub-types are mutually exclusive groups of entities within the one entity type, eg if the entity type is Person, sub-types might be Male or Female, Married or Not Married.

Entity sub-types may be permanent conditions or modes of existence which are fixed over time, and event-independent, eg an entity tree may be an oak, an elm, an ash, etc; an automobile may be a bus, a car, or a lorry; a building may be a hospital, a clinic or an operating theatre.

Alternatively, the sub-types may describe impermanent conditions which are event-dependent, eg a person may be an employee or not an employee, married or not married, a child, an adult or a retired adult.

Entity sub-types and the recording of the sub-types have four important uses:

1. Different functions may only be applicable to certain sub-types and combinations of sub-types. It is therefore essential to the eventual design of the system and database that the sub-types are recorded, in order that the resultant systems and programs access the correct sub-types and frequency estimates for database design are based on the actual population accessed.
2. Some attribute types may belong only to certain sub-types. If the population of each entity sub-type is known, the information on function usage and population can be used to decide, when designing the database, whether there should be a split of attribute types to save space.

For example; entity type—Nurse, attribute types—Sex, Date of Birth, Name. Population 30,000. Sub-type — Staff Nurse, attribute types —Grade, Training, Assessment. Population 2,000.

Thinking in design terms for a moment, 28,000 records will have the attribute types, Grade, Training and Assessment as empty fields. Two record types may therefore be needed: Nurse and Staff Nurse.

3. Validity controls, consistency rules, etc, are often entity sub-type-dependent.
4. Transaction design is totally dependent on knowing sub-types. These points will be discussed in detail later in the series.

1. Wherever possible, the entity types chosen should describe permanent states within the boundaries of the enterprise. That is to say, it does not matter that the state may change outside the area relevant to the enterprise.

Example 1. "In-Patient" and "Out-Patient" are not stable states but are affected within our area of study by the events "Patient admitted to Hospital" and "Patient discharged from Hospital." These two classifications would not therefore be used as entity types.

Example 2. Doctor, Nurse and Patient are stable states within our area of study. It has been assumed that Doctors and Nurses cannot become Patients (or if they do it is so rare that it is not worth prejudicing the clarity of the model for) and that Nurses do not suddenly become Doctors or vice versa.

2. The highest possible grouping or classification of entities, which still has meaning to the enterprise should be chosen. For example, entity type "Commodity" instead of "Raw Material," "Stores," "Product," etc., *unless* the following apply about the sub-types which result:

2.1. The entity sub-types have significant differences in their attribute types
AND/OR
2.2. The entity sub-types have different means of identification
AND/OR
2.3. The entity sub-types participate in significantly different relationship types.

For example, Patients, Nurses and Doctors all had different means of identification, significantly different relationship types and significantly different attribute types, hence "Person" would not be a useful Entity Type to define.

3. It was stated earlier that entity sub-types can describe impermanent conditions and are affected by events.

In order to determine entity sub-types, once the entity type is fixed, it is important to consider every event which may affect the entity type and determine whether it affects its condition within the boundaries chosen.

This consideration will be discussed more fully in the section of this series entitled Entity Life Cycles. However, it should be noted that every event, especially those which affect relationship types with other entity types, might cause a change in state and should therefore result in the creation of entity sub-types.

Example 1. Event "Leaves the Enterprise," change of condition of Person from Employee" to Not Employee. Sub-types — Employee, Not Employee.

2. Event "Retires," change of condition of Person from "Not Pensioner" to "Pensioner." Sub-types — Pensioner, Not Pension.

The value of a classifying attribute type is used to represent the sub-type of an entity type occurrence. As entity types may be classified in more than one way, there may obviously be more than one classifying attribute type. For example:

Entity Type: Person
Attribute Types: Male/Female Indicator, Employee Indicator, Pensioner Indicator
Attribute Values:
M—Male
F—Female
E—Employee
N—Not Employee
P—Pensioner
N—Not Pensioner

Entity sub-types can be documented in the data dictionary. If the relationship between functions and entity types is going to be represented in the data dictionary, it is then essential that sub-types are included, to indicate which functions apply to which sub-types.

In very simple cases (ie one classifying attribute type) where different entity sub-types participate in different relationship types, it is sometimes useful to depict the situation in the entity model. This is done by drawing the relationship types to the smaller sub-type boxes. An example is shown in Figure 1.

This article has introduced the concept of entity sub-types and discussed their relationship with entity types. In the next, special considerations concerning entity sub-types will be examined.

The Data Analysis methodology was developed at CACI by Ian Palmer.

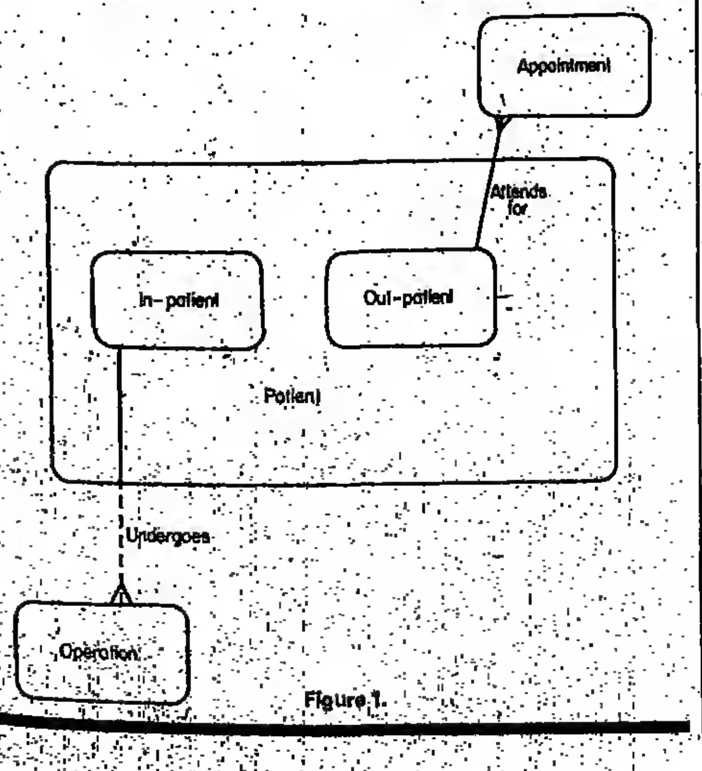


Figure 1.

MICROSYSTEMS'81
EXHIBITION & CONFERENCE
March 11-13, 09.30-18.00 daily
Wembley Conference Centre
Exhibition admission £1.00
A complete study of microprocessors in use.
Microsystems '81 consists of a wide ranging exhibition, together with a three day conference and three one-day microprocessor awareness courses. Together they comprise an invaluable opportunity for those interested in microprocessor applications and the latest developments in microelectronics technology
Take advantage of this unique event to examine and discuss a comprehensive range of microprocessors, peripherals, memory products and personal computers together with the software which accompanies them.
For Conference details write to:
The Conference Administrator
IPC Conferences Ltd, Surrey House,
1 Throwley Way, Sutton,
Surrey SM1 4QQ
For *advance exhibition tickets at £1 each, write to: Microsystems Tickets
IPC Exhibitions Ltd, Surrey House,
1 Throwley Way, Sutton,
Surrey SM1 4QQ
*Please note applications for tickets cannot be accepted after February 23, although tickets will be available at the door price £1. Cheques should be made payable in UK sterling to IPC Business Press Limited.

PEOPLE and EVENTS

New chair at Queen Mary College London

SENIOR research consultant Professor John Iliffe, visiting professor at Queen Mary College, London University, has been appointed to the new chair of information systems science and technology at the college.

Prof Iliffe, who works for ICL, will be responsible for the development of an integrated curriculum, covering the design and construction of information processing systems at all the relevant hardware and software levels.

The chair will be in the Department of Computer Science and Statistics which plans, with the Department of Electrical and Electronic Engineering, to offer in the near future, a four-year degree programme in the field of computer systems technology.

Before that, starting in October 1981, the Department will be running a degree programme in computer systems with microelectronics.

Educated at the City of London school, Prof Iliffe read mathematics at Cambridge. He entered the computer industry in 1956 and ran IBM's first computer service bureau in London. While working for ICL he and one of his research teams developed the concepts of the Distributed Array Processor, which carries out very high-speed calculations.

Prof Iliffe has been associated with Queen Mary College since 1976, during which time he has developed a new undergraduate course in advanced computing design, and has continued his research into computer architecture.

In charge of printers launch

John Ing has been appointed by Pertec International to be responsible for the launch of its range of serial printers throughout Europe, Africa and the Indian subcontinent. He joined the company as district sales manager, having previously been product marketing manager with Documentation.

Barry McTeroaa has joined GMS Computing as head of consultancy. He joins from Coopers and Lybrand Associates.

Bob Cardwell has joined the Daniel Trimmer Consultancy and its related organisation, the Senior Computer Contracts Register, as senior partner, with responsibilities in the insurance and finance sectors. He was previously with IBM UK for 12 years, and head of management services with a major Lloyd's broker.

Derek Pay, formerly a director of Consultant Systems, has been appointed sales director at Tempatron. Another newcomer to the company is Raj Gupta, who joins as corporate project manager from the Financial Times, where he worked as corporate planning and projects executive. Two of the company's senior engineering staff have been promoted. Peter Bawers, formerly technical manager, is now applications manager and Charles Toogood, previously senior electronic engineer, becomes engineering manager.

David Lyons will be director of Input's European field service programme. He was previously engineering services marketing manager.

Richard Muslal has been appointed data processing manager at Swift Chemicals Company. He was formerly systems manager for Presteold.

Peter Corke has joined Hamlin Electronics as sales engineer. He was previously with Mann Components.

Graham Hallett has joined Lowndes-Ajax Computer Services as a director. He will take responsibility for the launch of new ventures in the UK. Since 1977 he has been managing director of Wallorax, the specialist IBM small systems company.

Harris Information Systems International Division has made five senior sales appointments. They are (left to right): Clive Boon, Bill Williams, Allen Currier, Mike Thatcher and George Hood-Leedar. Seated is UK general manager Frank Walters.

Micro Scope adds to staff

FOUR new appointments have been made at Micro Scope as part of the company's expansion plan.

Peter Lloyd will be responsible for the company's commercial consultancy. He has been involved in processor and operating system design for 10 years, with three computer manufacturers. Before joining Micro Scope he was with Logica and Attwood Computer Systems.

Consultant/project manager is Simon Wright, who joins from Inter Europe Software Design. He was previously with Adler Business Systems as an analyst/programmer.

Sandra Williams has joined the company as an analyst/programmer, having previously worked as a systems engineer at Racal. Debbie Nesa becomes junior programmer, after completing an HND in computing at the Central London Polytechnic.

Geoffrey Johnstoa has been appointed Simplan support manager at Peter Merrick Associates. He was previously with SSI International. Barry Mitchell joins the company from Data 100. He will be working as system manager for Time-Slot.

Nigel Roberts has been appointed business development manager, marketing management information systems at GSI UK. He was formerly statistician and systems analyst with ICL Dataskil's advanced systems sector.

Ray Cook has joined Unilever Computer Services Ltd (UCSL) as systems manager for the Southern Region. He has been in the computer industry for 17 years, and his previous employers have included Plessey and the Rank Organisation.

Gillian Heath has been appointed sales executive at Sigma Electronics Systems. She previously worked for Marconi Space and Defence Systems as systems engineer, and later gained experience in sales and support with Elscint.

BETA re-elects its president for 1981

CHAIRMAN of the Frank Wilson group of companies, Bryan Wilson, has been re-elected president of the Business Equipment Trade Association for the second successive year.

BETA represents the interests of manufacturers and sole concessionaires of all types of business machines and systems, computers and associated peripheral equipment in the UK.

In his acceptance speech, Wilson called for a single integrated voice, data and image communications network in British Telecom. He also criticised the high price that industry pays for energy in the UK, saying that he failed to understand how the present government, as a champion of freedom and private enterprise, could indulge in deliberately manipulating the price of gas for non-commercial reasons.

Wilson's involvement with the association began in 1950, when he became executive representative of his family company, Frank Wilson Filing Ltd. The company was established in 1908, and has offices in London and Southport.

He was re-elected to the council five years ago and made vice-president in 1978. He was also honorary treasurer from 1976 to 1979.

Brian Gifford of Nexos UK and Larry Lewis of Mailing and Mechanisation were elected vice-presidents of the association. The two other vice-presidents, Denis Blackwell of ICL and Rex Howell of Dymo Business Systems were re-elected.

Dave Ware and Edwin Monger have been appointed to the board at Dicoll Electronics. Ware is the company's sales director, formerly sales manager. Monger was company secretary and is now financial director.

David Carlton has been promoted from financial controller to financial director at the Racal-Redac group. He joined the company in 1979.

Steve Doig has joined Wilkes-PCA Data Supplies to run sales and marketing operations for the Wolverhampton and Warrington Online Stores. He joined the Wilkes group in 1978.

Ian Powers has moved from Motorola Semiconductors to develop all network and firmware products at Zynar in Uxbridge.

Mark Rawling has joined Prime as a software consultant, dealing mainly with the Ministry of Defence and national research establishments. He previously spent three years with the Ford Motor Company as a systems analyst. Joining Rawling as a software consultant is John Makolski, who formerly worked for APV Company Ltd, and Calcomp. A third new appointment at Prime is that of Mary Callov, an associate analyst who joins from ICL.

Michael Roberts has been appointed to lead the sales team at Jenson Computer Systems of Bristol. He is a member of the Scottish Institute of Chartered Accountants and the Institute of Marketing. He previously worked for Godwin Warren Engineering as a marketing director.

DIARY

JANUARY 6
Micrographics. IDPM Birmingham branch. Saracen's Head, Stratford Road, Shirley. 7.30.

JANUARY 13
Protection For Software. BCS Merseyside branch. Faculty of Science Lecture Theatre, Liverpool University. 6.00.

JANUARY 13
The Local Computer Scene, Past, Present and Future. IDPM Hull branch. Hull Crest Hotel, Ferriby High Road, North Ferriby, North Humberside. 7.15.
Artificial Intelligence — Voice Recognition. IDPM Essex branch. County Hotel, Chelmsford. 8.00
Meeting. IDPM Scottish branch. Speaker from CBI. Glasgow.

JANUARY 15
Meeting. IBM Guide Set Group. IBM Basinghall Street, London EC1. Details: (01) 828-8104.

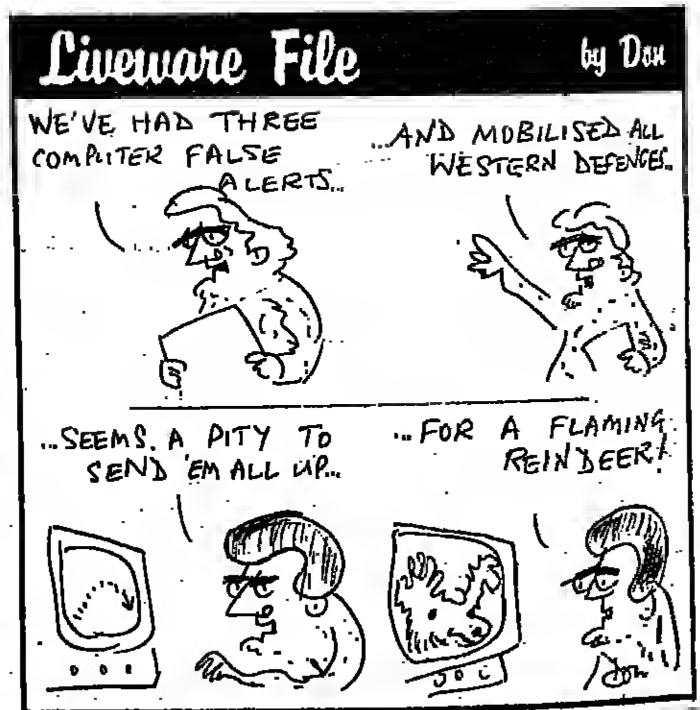
JANUARY 20
Communications in principle — the theory of communications and networks. IDPM W London Oxford branch. Caversham Bridge Hotel, Reading. 7.30.
Microcomputer workshop. IDPM Scottish branch. Edinburgh. Ticket holders only.

JANUARY 21
DP remuneration and job satisfaction. IDPM Central London Branch. Pearl and Dean Studio, 15 Broadwick Street, London W1. 6.00

JANUARY 27
Microcomputing workshop. IDPM Scottish branch. Glasgow. Ticket holders only.

JANUARY 28
Current cost accounting, presented by Safe Computing. IDPM Sheffield branch. Grosvenor House Hotel, Sheffield. 7.30.

JANUARY 30-31
Annual General Meeting. UCSD p-systems User Society. Dicoll. Dragonara Hotel, Bristol. Tel: (0865) 58086.


Liveware File
by Don
WE'VE HAD THREE COMPUTER FALSE ALERTS...
...AND MOBILISED ALL WESTERN DEFENCES.
...SEEMS A PITY TO SEND 'EM ALL UP...
...FOR A FLAMING REINDEER!
Don

DOCU-MATE
THE TIME SAVER

Docu-Mate filing equipment for all types of computer related documents helps you to organise your data processing operation.
Cartridges, binders and folders file by their centre hook or drop file by end hooks into a variety of filing and reference equipment.

Wright Line
1981 SQUASH TOURNAMENT
Now on

The Wright Line Division of
The Carter-Parratt Group
Vistrecord House Kimpton Road Sutton
Surrey SM3 9QD
Tel: 01-644 4355 Telex: 943959

CB -the countdown has begun!

Get ready for Citizens Band radio with a brand-new magazine that tells you everything you want to know. We show you how CB works and how to use it. We've got a full colour spread on customised American trucks. We offer special deals on CB World sweat shirts, T shirts, caps and badges. And we ask: should we use US Truckspeak or create our own English jargon? And what about the radio amateur—and the aircraft modeller? Tell us what you feel. Get involved—and get this very first issue of CB World!

Published by IPC—the world's largest publisher of radio and electronic magazines

CB World
FIRST ISSUE OUT NOW 60p

marketplace

WANTED
ANALYSTS
PROGR
oper
Dataprinter

SK Computer Systems Limited

DEC® SYSTEMS FAST!

YORK HOUSE, STEVENAGE ROAD
HITCHIN, HERTFORDSHIRE, SG4 9DY

- PDP® BASED COMPUTER SYSTEMS
- FULL RANGE OF SOFTWARE
- PER CALL OR CONTRACT MAINTENANCE AVAILABLE
- WIDE RANGE OF DEC® COMPATIBLES
- TELEPHONE: 0462 31116
TELEX: 825647

0462 31116
DIGI-DATA
®DIGITAL EQUIPMENT Co
systems and compatibles in stock

Computers Bought and Sold

E O B LIMITED

Tel: 0783-44777
Telex: 537783

LA34 DECWRITER IV

Surplus to requirements.
New condition.
£450 for quick sale.

Ring Mr. Dunkeld
Tel. 01-581 2067

FOR SALE

L15 Burroughs Double Density 2-3 Millibyte disk cartridges, disk cartridge cleaner, 30 bottles cleaning fluid and 10 boxes pads.

Telephone Dublin 771801, ext. 122 office hours or telex 25141 for details prices. Prices negotiable.

DYSAN DISKETTES
LARGE QUANTITIES FROM STOCK

HAL COMPUTERS
Exclusively DYSAN
Weybridge (0932) 40346/7

Arlon Printers
For Design, General and Full Colour Printing
Arlon House Kings Langley
Tel: Kings Langley 68328

VAX TIME

- Waiting for Delivery?
- Try before you buy?

Remote access VAX timesharing available.
DEMOTAB LIMITED
99-101 Regent St, London W1
01-439 3971.

TENDERS
WEST SUSSEX COUNTY COUNCIL

SUPPLY OF DATA PREPARATION EQUIPMENT

Notice is hereby given that the West Sussex County Council wish to receive Tenders for the supply of Data Preparation Equipment.

Their appropriate Tender Forms, together with copies of Conditions of Contract and a specification may be obtained on application to Head of Computing Services, County Treasurer's Department, County Hall, Chichester, West Sussex.

The County Council do not bind themselves to accept the lowest or any Tender received.

All Tenders should be submitted on the above-mentioned Tender Forms and should be delivered to the County Secretary of the West Sussex County Council at County Hall, Chichester, West Sussex, in a plain sealed envelope or package on or before 12 noon on 29th January, 1981. Nothing should appear on the outside of the envelope which would indicate the name of the tender.

(7880)

PRESTIGE OFFICES

TO LET
NORTH SURREY
TWO FLOORS

3,100 sq. ft. approx. each
Rent from only £5.50 per sq. ft.
Close to A3, Main Line to Waterloo

Details from:
CHESTERTONS
28 Queen Street
London EC4R 1BB
01-248 5022

FOR SALE
DATA GENERAL MICRO NOVA EQUIPMENT

Consisting of:
1. MP/200 System 64KB with 10 Megabyte Cartridge Sub-System.
2. LP.2 Line Printer. Screen/Keyboard. D.O.S. Business Base.

Available ex-W.C.2 address.

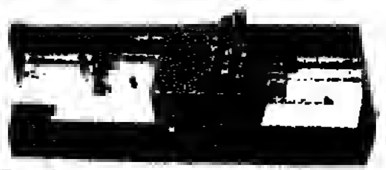
This equipment is only just over 8 months old and is being disposed of only so that the company can move to a system that is totally compatible with those of its French Parent.

Offers and enquiries please to:
London Pare et Fils Ltd., 1 Savoy Court, London, W.C.2.

WEBSTER D/P SERVICES LTD.

NEW/USED DP EQUIPMENT
BUY OR SELL THROUGH
WDP

NEW DE LUXE 80 COLUMN HAND PUNCHES (EX-STOCK)



WDP
01-464 9011
TELEX 896589
WEBSTER D/P SERVICES LTD. 85 WIDMORE ROAD, BROMLEY

IBM 129,029 PRINTING CARD PUNCHES
SORTER - REPRODUCERS - INTERPRETERS
★ EX STOCK ★ NEW/FULLY REFURBISHED
★ FULL WARRANTY ★ VARIOUS CODE OPTIONS
CDL COMMERCIAL DATA LTD.
Dawnham Road, Ramsden Heath, Billericay, Essex
TEL. BASILDON (0268) 710292

DEC and DATA GENERAL
Buy, Sell or Trade
Call Alastair Dods 01-464 0942
Thomas Business Systems, Ltd.
SURPLUS HARDWARE

ATTENTION!
ATTENTION!
ATTENTION!

Do you have any unused or redundant computer equipment that you want to sell? If so, call me, Xenia White, to find out how easy it is to place an advertisement in the Market Place section of Computer Weekly and reach over 94,000 Computer People in this country.

My telephone number is
01-661 3500, Ext. 357

DON'T DELAY—CALL TODAY!

The Hospitals For Sick Children &
The National Hospitals For Nervous Diseases
London

A TURN-KEY COMPUTER-BASED PATIENT ADMINISTRATION SYSTEM

is required to handle Master Index, Out-Patient Appointments, In-Patients, Waiting List and Diagnostic/Disease Index applications at these two hospital groups.

The system should operate on-line and is required for installation by December, 1981.

Detailed Operational Requirements available from:

Management Services Officer
LPTHMSU
6 Queen Square
London WC1N 3AR

★ PDP11/03 ™ /TO VAX 11/780 ™
★ TOTAL DEC ™ OR COMPATIBLES
★ APPLICATION SOFTWARE

FAST DEC! ™

FROM
Systek
HR House, High Road,
North Finchley, London N12 0AZ
Tel: 01-349 2911 Telex: 28227

™ These are registered trade marks of Digital Equipment Corporation

BUY SELL TRADE
DEC PDP11
For new/used Processors, Peripherals, Modules or complete systems
Call Peter Stock or Peter Hufton 0602-861774
Dectrade Ltd, 11 Musters Road, West Bridgford
Nottingham.
Telex 377678 VIDEUR.

MIDDLESEX

MODERN OFFICE BUILDING
8,000 sq.ft./16,000 sq.ft.

Easy access to
Central London/Heathrow.

Immediate occupation

Box No: 1118

DARKCREST LTD.

Low cost RSTS/E and RSX11-M Systems, LSI 11/23 CPU, 256kb MOS, BOX/PWR/Cabinet, two VT100s, 180 cps LA120, 4-line interface plus: 14Mb fxd + 42Mb exch (RK06/7 type) £17,800. Plus: 67Mb fxd DISC + 800/1600 bpi M.T. £21,500. Plus: Two 67Mb exch (RM02/3 type) £24,500.

Full line of DEC compatibles—send for 32-page catalogue.

Mermaid Court, 165A Borough High Street, London, SE1
Tel. 01-403 2330/6683 Telex: 893245

HP 3000 SERIES 33 FOR SALE

Machine virtually unused and in prime condition. Can be quickly released. All offers considered.

Box No. 1119

FAS Approved
ANTISTATIC COMPUTER
FLOORING
The WHICH
COMPUTER Show
STAND 018
NEC BIRMINGHAM
25-28 November
1980

FITTED
COMPUTER
CARPET FROM
£4 sq. yd.

MARVILLEN CARPET & TILES
Duke St., Bedford. 214155

NEWS IN BRIEF

Deadlines met online

WOLVERHAMPTON'S Express and Star evening newspaper is the *first daily publication to introduce* an online news gathering service with the agreement of the unions. The introduction means reporters can transmit stories rather than phoning them in – a saving of 10 minutes per story on average.

From Tuesday December 16, journalists sat at Delta Data 2100 VDUs and transmitted their copy to a PDP-11/70.

IBM scores

LIVERPOOL University has gone to IBM rather than ICL for a machine to relieve the workload on its ICL 1906 mainframe. The four-megabyte IBM 4341 on order will support 1200 megabytes of Memorex disc storage and 40 Memorex 1377 display terminals. It will service more than 60 simultaneous terminal users.

Two Pi takeover

IBM-compatible minicomputer builder, Two Pi, is to be bought by Four-Phase Systems of Cupertino, California. Four-Phase is the firm whose distributed processing kit is built and sold under licence in Europe by Philips, the existing Two Pi parent company.

Apple windfall

APPLE Computer Inc finally placed their shares on the over-the-counter market in New York on December 12. Five million shares were offered to the public at $22 each. By the end of the first day's trading the shares had reached $29. This gave Apple a market capitalisation of $1.56 billion, and made the two founders of the company, Steve Jobs and Steve Wozniak, worth together more than $700 million.

Council preferred DEC to local firm

LEEDS-BASED Systime has been at the centre of a major controversy in West Yorkshire. It was created by the County Council's decision to order two VAX machines worth nearly £600,000 from Digital Equipment rather than from the local systems supplier.

Systime *chairman John Parkinson* described the council's decision as "bloody crazy" and said that his company could have supplied the VAX machines at a lower prices than DEC, with a higher UK added value.

He thought that the council had made a fundamental mistake in opting for DEC's VMS operating system rather than for Systime's Systel.

Parkinson said that Systime had not been asked to tender for the contract. Then, after heavily publicised criticisms of the council's decision by people outside Systime itself (including local politicians and the Leeds Chamber of Commerce) engineering officers of the council questioned whether Systime could handle the job.

The VAX machines will be used for structural and traffic engineering work at West Yorkshire's Wakefield head office, and John Parkinson pointed out that Systime could have supplied the necessary applications packages just as easily as DEC.

Parkinson described the attitude of the West Yorkshire engineering executive as "entrenched".

Council engineers agreed to meet with *Systime a few days after* DEC was given a letter of intent, mainly because of the publicity surrounding the affair. But they subsequently advised the council to stand by its decision to buy from DEC.

Parkinson . . . "It's crazy."

Morris Schwartz (right), manager of ICL's new Bristol showroom, with Norman Strangelove, SW area manager of the company.

High Street computer shops

THREE major companies – ICL, Xerox and Lion Microcomputers – have entered high street computer retailing with new showrooms in Brighton, London and Bristol respectively.

ICL's Computer Point in Bristol *represents a departure from its* UK network of Customer Centres in which there are appointment-only demonstrations of equipment.

The Bristol showroom will allow passing business people to pop in for advice and demonstrations, with particular emphasis laid on specialised software applications.

They will include items of interest to solicitors, estate agents and travel agents as well as general accounting and production packages.

Computer Point is situated at Brigstowe, 5 Welsh Back, Bristol BS2 4SP.

Lion *Microcomputers* has opened its shop at 21 Bond Street, Brighton. It offers a wide hardware and software range, publications library, and a repair and maintenance service.

Executive director Andrew Margolis commented: "Currently, Brighton has a couple of microcomputer outlets. Tandy has a store that was doing well and an independent concern offers the PET. However, there is no Apple dealer in Brighton, so as an authorised dealer, we hope to corner the market."

Xerox has chosen Holborn as site for its second London branch. Equipment covers the range from calculators to minicomputers and features suppliers like Apple, Hewlett-Packard and National Panasonic.

Telecoms Council fails to gain support

THE Telecommunications Council has failed to gain the support of the main organisations it was set up to unite.

At its launch in November, a spokesman said he expected companies and users to be associated with the council through their trade associations and not through individual membership.

But the Business Equipment Trade Association, one of the mainstays of the new pressure group, this month withdrew its support. Council president Lord Morris said he had been opposed to this arrangement from the beginning.

It would have made the council "too remote from the issues," he said, and would have generated conflicts of interests in delegates between their employment and their various association memberships.

Other target organisations have decided against joining after initially expressing interest, including the Electrical Engineering Association, the Telecommunications Engineering and Manufacturing Association and the British Radio *Equipment Manufacturers'* Association.

The Telecommunications Managers' association and two mobile radio associations are continuing their membership and Lord Morris said he was optimistic about individuals and companies joining.

Oil cash

● **From front page**

attempts to raise money with a rights issue. The City's reaction to the poor results was *sharp* and the revelations that the DoI have been actively seeking funds for the company has added to the pessimism about ICL.

The DoI's move seems to be part of a government strategy designed to steer ICL away from seeking public funds for its currently underfunded R&D program.

ICL's determination to maintain a product range which stretches from micros to mainframes implies that *additional* funds will be needed if the R&D is not to be starved. Additionally chairman Philip Chappell has stressed that conservation of cash is a priority for 1981.

Micro prizes

THE Scottish Industry/Education microelectronics working party is running a competition and offering cash prizes for microelectronic application projects in colleges throughout the country.

EEC lists objections to IBM practices

MORE than six years after the start of its investigations into IBM's business practices in Europe, the EEC has filed a "statement of objections" against the industry giant.

Among other demands, the EEC wants IBM to stop including a minimum amount of main memory in processor prices, to make more systems software freely available to plug compatible manufacturers, and to provide interface information earlier than at present. Memorex was the main complainant to the EEC over the latter issue.

IBM pointed out that some of the objections raised by the EEC were similar to those already dealt with in US litigation and resolved in IBM's favour. It was referring to the anti-trust suits by Memorex, Telex, Calcomp and Transamerica. IBM said that it was confident that it "fully complied with the rules of the EEC".

IBM will now have to respond to the EEC complaints *in the form of* oral presentations before the Commission. If the EEC stands fast in its complaints, IBM could appeal to the European Court of Justice in Luxembourg, whose ruling would be final.

If IBM loses it could be fined as well as being forced to change its practice in the EEC.

Rohan Computing
DEC LA34
DEC VT100
Ex-stock
Ring for price
Tel: Southam (092681) 4045

RAIR
Terminal CHOICE
DIABLO 630
Industry standard daisy-wheel printer with metal and plastic wheels, graphics, two colour printing.
£1650
RAIR 30-32 Neal Street, London WC2 Tel 01-836 4663

COMPUTER FINANCING INTERNATIONAL LIMITED
We have available for March 1981
IBM 3033 N12
IBM 3033 N16
Tailored leasing plans
Telephone 01-491 4152 or 01-499 7955
Telex: 8954724

Micro Nova Systems and DG Terminals
Now Available Ex-Stock
DATA GENERAL
Prices start from £4460 for the MP100 and £5076 for the MP200 systems. Systems range from floppy disc through cartridge to Winchester storage.
Comma offer 'off the shelf' delivery of complete Micro Nova Packaged Systems as well as Expansion Memories, Communications Options, Interfaces and comprehensive Operating Systems Software.
Data General Printers and Dasher Terminals are also available ex-stock.
OEM DISCOUNTS AVAILABLE.
COMMA COMPUTERS LTD
Branches in Birmingham, Bristol, London, Manchester.
BRENTWOOD (0277) 811131.

Printed in Great Britain by QB Limited, Sheepen Place, Colchester, CO3 3L and published by IPC Electrical-Electronic Press Ltd., Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS.

مكتبة منير الصلح